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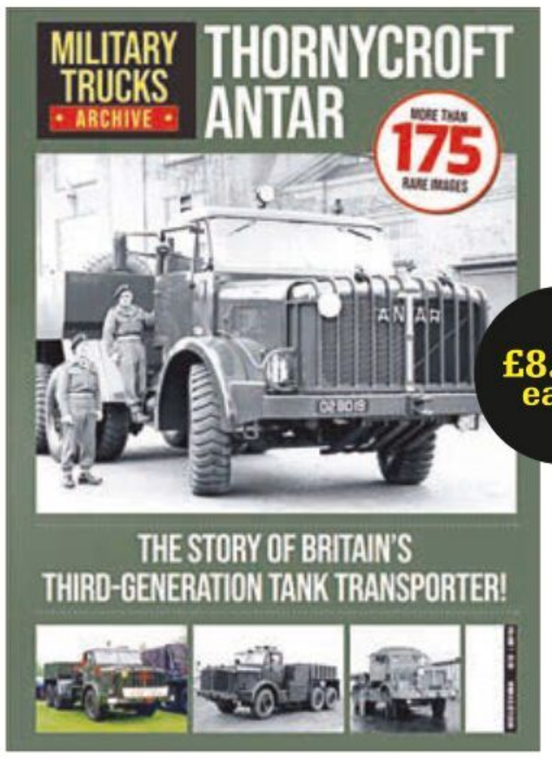
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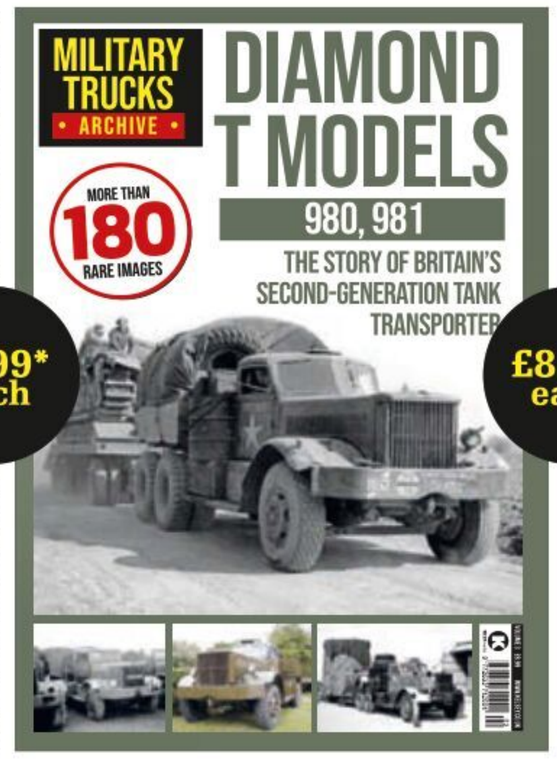
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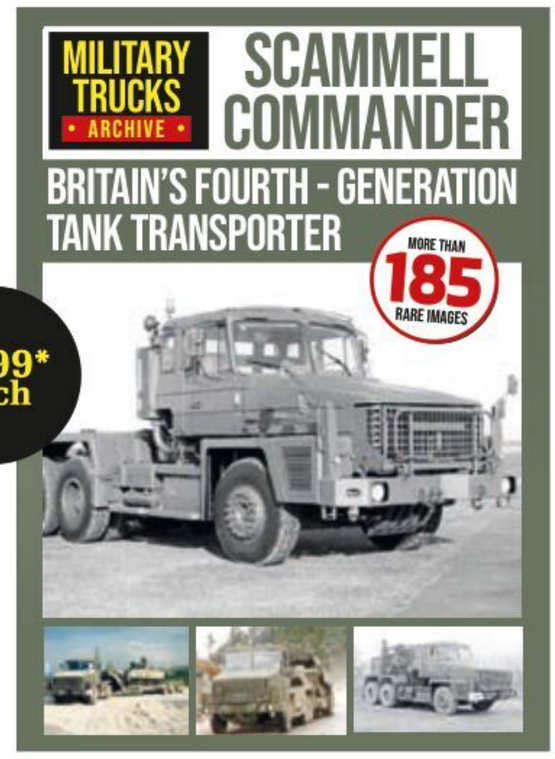

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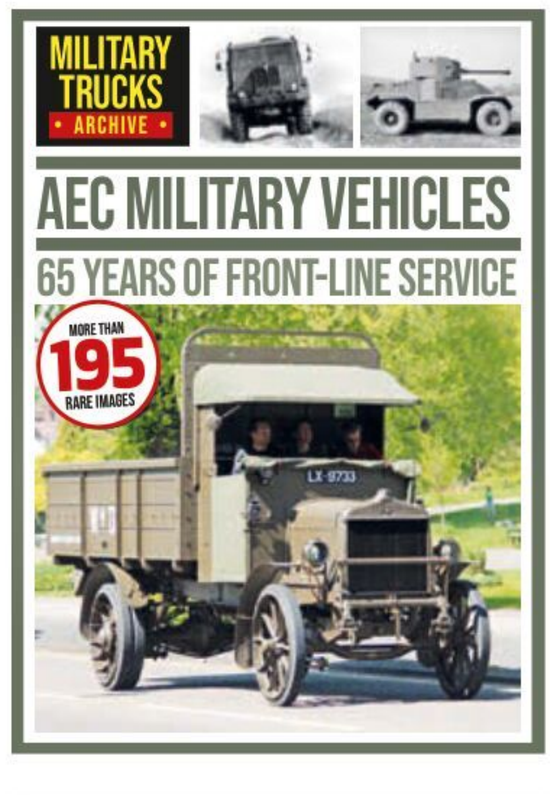

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MILITARY TRUCKS ARCHIVE

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● Entering production in 1952, the Humber 1-ton truck (FV1600) was intended to replace a motley mix of 15cwt vehicles from WW2. Some 3700 examples were constructed, with many immediately going into storage, eventually being rebodied as armoured personnel carriers. *(Simon Thomson)*

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Compiled and written by Pat Ware with source material from the Warehouse Archive, PM Photography, and Simon Thomson.

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INTRODUCTION

A brave new world of British soft-skin vehicles?

At the end of WW2, the British Army had an inventory of something like 1.25 million soft-skin vehicles, consisting of around 600 different types arranged in 55 categories. They were a motley mix of home-grown vehicles as well as US designs, most of which had been supplied under the Lend-Lease arrangements. Many were well past their sell-by dates, with some of the domestic vehicles dating from the opening years of the war... a small number could even trace their origins as far back as the pre-war period. However, by this time, it was, at least, well recognised that trucks were the lifeblood of modern armies, and, should it have turned hot, the Cold War would demand the utmost mobility.

● Rated at 10 tons and produced both with both 6x4 and 6x6 drive-line arrangements, the AEC Militant was the GS equivalent of the CT-rated Leyland Martian. This example was photographed at the 1954 FVRDE exhibition of military vehicles.

During the conflict, virtually every British automotive manufacturer had been involved in supplying vehicles to the services, and each had expressed their own ideas of how to meet, what were often, very general official requirements. No attempts had been made at standardisation, beyond items such as electrical and lighting equipment, and wheels and tyres, simply because the need for vehicles was more pressing than any need for standardisation. But, imagine how difficult this situation made the tasks of stockholding spare parts and maintaining the fleet.

Now that the war with Germany was over, it was clear that something had to change. It was time to step back and take a good look at what was going to be required over the next 20 years or so.

The first thing that happened is that surplus vehicles, usually those that had been accepted into service

Top: Similarly rated at 10 tons, and classified as GS, the Albion WD.HD23 was manufactured in both long- and short-wheelbase configurations and was bodied for a number of different roles. A total of 500 examples were constructed. *(PM Photography)*

Left: Construction of the CT-rated Champ – although this was actually its civilian name – started in 1952 and continued until 1956, by which time almost 13,000 examples had been built. The Champ was a sophisticated machine, bristling with technical innovation, but proved to be expensive and unreliable.

Bottom: Constructed in 1946/47 and hailed as Britain's answer to the American Jeep, the ugly little Morris Gutty was the first iteration of the process that eventually led to the Austin Champ. Although ultimately rejected for its many failings, the Gutty incorporated a number of advanced technical features including independent front and rear suspension using torsion bars.

only reluctantly, were disposed of by being passed on to other United Nations countries. Others, particularly those that were effectively worn out, were sold by auction to civilians. By 1946, with vehicle stocks rationalised to what were considered acceptable peacetime levels, albeit this was uncharted territory, the War Office believed that it was in a position to start implementing the plan for the standardisation of vehicles that had been first mooted in the last months of the war.

Towards the end of the war, the War Office had come around to the view that the design of military vehicles had become sufficiently divergent from mainstream commercial vehicles, that all soft-skin – or 'Category B' vehicles – should be designed by the government's own

INTRODUCTION

● Austin's 1-ton K9WD series was a militarised version of the Austin Loadstar and was the GS equivalent of the Humber 1-ton. Roles included wireless, as seen here, as well as cargo, ambulance, water tanker and radio repair. *(Simon Thomson)*

● One of the most successful and numerous of the post-war military vehicles, the Bedford RL was a militarised, all-wheel drive version of the civilian S-Type, the so-called 'Big Bedford'. More than 73,000 examples were eventually constructed, covering almost 200 variants.

agencies. This, of course, meant the Chertsey-based Fighting Vehicles Design Establishment (FVDE), which, in 1953, merged with the Fighting Vehicles Proving Establishment (FVPE) to become the Fighting Vehicles Research & Development Establishment (FVRDE). The principle was set out in 'General staff policy statement 35: post-war design of B vehicles'. The document laid down broad principles for the design of various types of vehicle, and included the statement that 'generally speaking, the standard commercial vehicle is unsuitable for army use, and vice versa'.

It quickly became clear that designing a whole range of 'B' vehicles from scratch, without reference to commercial practice, provided the basis for a very expensive mistake. As a compromise, the 'B' vehicles would be divided into two groups... these were described as 'combat vehicles' and 'general purpose' vehicles. By 1950, a paper put before the Executive Committee Army Council (ECAC) went further, suggesting that 'B' vehicles should consist of three subgroups, as follows...

CT or 'combat' vehicles were described as 'specialised military vehicles with multi-wheel drive, manufactured from components not used for commercial purposes, and required to give the best possible load-carrying capacity and cross-country performance, with or without the appropriate guns or trailers'. All were to be powered by the appropriate Rolls-Royce B Series or Rover Meteorite petrol engine, with particular attention paid to the interchangeability of engine parts.

GS, or 'general service' vehicles would consist of militarised versions of standard civilian products, and were, somewhat patronisingly, described by FVRDE as being 'for the less spectacular, but equally important, supporting roles'. Typically, the GS class comprised down-rated versions of commercial trucks, with the addition of four- or six-wheel drive, and generally with FVRDE-designed lighting and electrical equipment, and military wheels and tyres.

Finally, the CL or 'commercial' class consisted of essentially-standard civilian vehicles, intended for use in rear areas.

Within the CT class, six weight categories were defined... $\frac{1}{4}$ ton, $\frac{3}{4}$ ton, 3 tons, 10 tons, 30 tons, and 60 tons; a 20-ton category was subsequently added, and the $\frac{3}{4}$ ton class was later increased to 1 ton. Each family of vehicles was assigned a four-figure 'FV number' – or design reference number – which indicated the series to which the vehicle belonged, with the last two numbers indicating the vehicle's role; for example, FV1600 was assigned to the 1-ton truck series, whilst FV1601 indicated a cargo variant, and FV1602 indicated an FFW/FFR cargo vehicle, that is a cargo vehicle that had been 'fitted for wireless' or 'fitted for radio'.

Heavy Tractor 6 x 6 Combat

Truck Combat ¼ Ton 4 x 4

THE ARMY'S NEW VEHICLES

THE vehicles used by the Army are divided into three groups, Combat vehicles, General Service vehicles and Commercial vehicles. The Combat range consists of trucks, tractors, scout cars and the like, with "go-anywhere" performance. These vehicles are designed in their entirety for the Services to be used as fighting vehicles. As a result the performances of which they are capable are astonishing, whilst they fairly bristle with technical interest.

General Service Vehicles are for the less spectacular, but equally important, supporting roles. For the most part they are made of standard civilian parts adapted for Service use. They do of course differ in certain respects from vehicles of the same make to be seen on the roads. Most General Service trucks have cross-country tyres, some have 24 volt electrical systems and in all cases particular attention is paid to 100 per cent air-cleaning, for which purpose a special oil-bath air-cleaner has been developed. The Commercial Vehicles are standard "off-the-peg" vehicles for use in rear areas.

Particular attention has been paid to inter-changeability of parts. The majority of the Combat Vehicles have the "B" series engines, originally developed by Rolls Royce and now made by several manufacturers, and throughout the "B" series of engines pistons, piston rings, gudgeon pins, connecting rods and other parts are the same.

Since the war there has been continuous outcry about the tracts of land closed to the public for W.D. purposes. These photographs were taken at the Army Proving Ground, one of those disputed areas. But surely the work that has been done, the vehicles

Truck Combat 6 x 6 Field Artillery

Truck Combat 1 Ton 4 x 4

● The Fighting Vehicles Research & Development Establishment (FVRDE) was proud of its 'new vehicles', and, in the early 'fifties produced this leaflet illustrating the range and extolling their virtues.

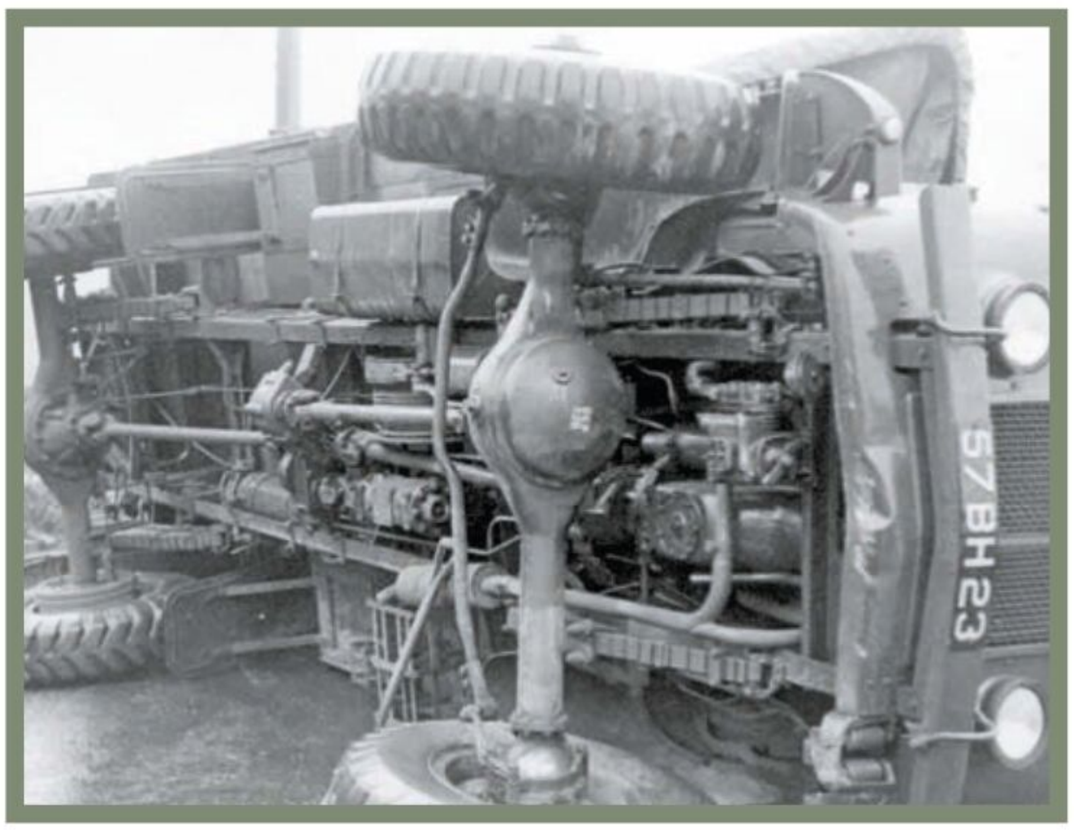
CT AND GS VEHICLE FAMILIES

Weight class	FV number series	Nomenclature	Manufacturer and model
¼ ton	FV1800	Truck, ¼ ton, 4x4, CT	Austin Champ
¼ ton	FV18000	Truck, ¼ ton, 4x4, CL, GS	Land Rover Series I
¼ ton	FV18000	Truck, ¼ ton, 4x4, GS	Land Rover Series II
1 ton	FV1600	Truck, 1 ton, 4x4, CT	Humber
1 ton	FV16000	Truck, 1 ton, 4x4, GS	Austin K9WD
1 ton	FV16100	Truck, 1 ton, 4x4, GS	Morris-Commercial MRA1
3 ton	FV1300	Truck, 3 ton, 6x6, CT	Vauxhall
3 ton	FV13100	Truck, 3 ton, 4x4, GS	Bedford RL
3 ton	FV13200	Truck, 3 ton, 4x4, GS	Commer Q4
3 ton	FV13300	Truck, 3 ton, 4x4, GS	Fordson Thames E2, E3, E4
3 ton	FV13400	Truck, 3 ton, 4x4, GS	Thornycroft Nubian
5 ton	FV14000	Truck, 5 ton, 6x6, GS	Albion WD66N
5 ton	FV14100	Truck, 5 ton, 4x4, GS	Thornycroft Nubian TF, TFA
10 ton	FV1100	Truck, 10 ton, 6x6, CT	Leyland Martian
10 ton	FV11000	Truck, 10 ton, 6x4, 6x6, GS	AEC Militant Mk 1, Mk 2
10 ton	FV11100	Truck, 10 ton, 6x4, GS	Albion WD/HD/23N *or* S
10 ton	FV11200	Truck, 10 ton, 6x4, GS	Leyland Hippo Mk 3, Mk 4
10 ton	FV11300	Truck, 10 ton, 6x6, GS	Scammell Explorer
10 ton	FV11400	Truck, 10 ton, 6x4, GS	Thornycroft Big Ben
20 ton	FV12100	Truck, 20 ton, 6x6, GS	Scammell Constructor
30 ton	FV1200	Truck, 30 ton, 6x6, CT	Leyland
50/60 ton	FV12000	Tractor, 50/60 ton, 6x4, GS	Thornycroft Antar Mk 1, Mk 2
50/60 ton	FV12000	Tractor, 50/60 ton, 6x4, GS	Thornycroft Antar, Mk 3
60 ton	FV1000	Truck, 60 ton, 6x6, CT	Leyland

* Excludes vehicles produced for civilian market.

Engine: type	capacity	Date produced	Numbers produced*
Rolls-Royce B40	2838cc (173in³)	1952	12,978
Rover	1595cc *or* 1997cc (97in³ *or* 122in³)	1948	13,500
Rover	2286cc (140in³)	1958	<1000
Rolls-Royce B60	4256cc (260in³)	1952	3700
Austin	3995cc (244in³)	1952	9500
Morris SEA/5	4196cc (256in³)	1952	7238
Rolls-Royce B80	5675cc (346in³)	1950	9
Bedford	4927cc (301in³)	1952	73,135
Commer	4750cc (290in³)	1952	3700
Ford	3924cc (239in³)	1952	5000
Rolls-Royce B80	5675cc (346in³)	1950	*n/a*
Rolls-Royce B80	5675cc (346in³)	1953	9
Rolls-Royce B80 or B81	5675cc *or* 6516cc (346in³ *or* 398in³)	1954	*n/a*
Rolls-Royce B80 or B81	5675cc *or* 6516cc (346in³ *or* 398in³)	1954	1380
AEC A223 or AV690	11,310cc (690in³)	1952	3200
Albion EN257C	10,457cc (638in³)	1951	500
Leyland O.600	9800cc (598in³)	1952	*n/a*
Scammell/Meadows 6PC630	10,375cc (633in³)	1950	726
Thornycroft GRN6	11,325cc (691in³)	1952	216
Scammell/Meadows 6PC630... *or* Rolls-Royce C6NFL	10,350cc (632in³) 12,170cc (743in³)	1953	346
Rover Meteorite 80	18,012cc (1099in³)	1954	2
Rover Meteorite Mk 204	18,012cc (1099in³)	1951	90
Rolls-Royce C8SFL	16,200cc (989in³)	1958	218
Rover Meteorite Mk 202A	18,012cc (1099in³)	1951	1

INTRODUCTION



● These are the catalogues that were handed to visitors at the exhibitions of British military vehicles hosted by FVRDE at Chertsey in 1954 and 1956. Additional exhibitions were held in 1962, 1966, 1971 and 1981.

Top Left: Although it was constructed using as many standard components as possible, this underside view of an overturned Fordson Thames E Series nicely demonstrates the driven front axle and the propeller shaft and transfer case arrangements necessary to achieve all-wheel drive. Five variants were constructed covering the ambulance, stores, and artillery tractor roles. *(PM Photography)*

Top Right: In automotive terms, the FV1600 Humber 1-ton series was one of the more successful of the CT-rated vehicles... but, unfortunately, it was unable to find a role. Many examples were disposed of at auction, often with very low mileage, and were subsequently broken up for scrap. *(PM Photography)*

Bottom: Needing little introduction, the ubiquitous Land Rover proved to be a more fitting replacement for the WW2 Jeep than did the Champ. Although it lacked any of the sophistication of the CT-rated Champ, it was considerably cheaper and probably more reliable. By 1958 it had been accepted as the Army's standard $\frac{1}{4}$-ton tactical vehicle.

Vehicles in the GS category were assigned to similar weight classifications, with an initial top limit of 20 tons, and were arranged in similar families. The GS vehicles were identified by five-figure 'FV' or, 'fighting vehicle' numbers' following broadly the same scheme as for the combat class. The FV16000 family, for example, was a 1-ton Austin K9 truck, the GS equivalent of the Humber 1-ton FV1600. However, there was a desire to not put all of the eggs into the same basket and, to avoid dependence on one company, the contracts were spread between manufacturers... for example, 3-ton GS chassis were supplied by Bedford, Commer and Ford, whilst 10-ton GS chassis came from AEC, Albion, Leyland, and Thornycroft.

Finally, in the CL category there was very little standardisation, and, with a couple of notable exceptions, these vehicles were not generally assigned 'FV numbers'.

In the early 'fifties, FVRDE produced a small leaflet, entitled '*The Army's new vehicles*', extolling the virtues of this approach to the design of military vehicles. The text claimed that 'the performances for which the 'combat' class are capable are astonishing' and that they 'fairly bristled with technical interest', which to some extent, was true; the Champ and the 1-ton Humber, for example, offered independent suspension by torsion bars at all four wheels which was a rarity for motorcars at the time, let alone military trucks.

However, all of this innovation came at a price and, needless to say, it wasn't long before the cracks started to show, with the whole exercise proving to be far more costly and difficult to administer than had

Top: Falling squarely into the category of 'whatever were they thinking', the Leyland FV1000 was a CT-rated 60-ton tractor, complete with a special semi-trailer, designed to transport the near 65-ton Conqueror tank. Just one prototype was constructed, before the project was abandoned, and the role handed to the Thornycroft Antar.

Left: With a wider body, and fitted with the more-powerful 2286cc (140in³) four-cylinder engine, the Series II Land Rover replaced the original in 1958.

Bottom: CT-rated 10-ton Leyland Martian photographed on the FVRDE tilt apparatus. The Martian was in production from 1954 to 1965, with 1380 examples constructed for roles that included cargo, artillery tractor, and recovery vehicle. It was possibly the most successful of the CT trucks.

been imagined. In practice, despite their complexity, the trucks in the CT category offered very little real benefit over those in the equivalent GS families and yet were often as much as three times the price. Obviously, a degree of simplification was called for.

Progress with the 3-ton CT class had been slow, with only a handful of prototypes produced, and it was ultimately abandoned as being too complex and unreliable. The 30-ton artillery tractor was put on hold and the 60-ton tank transporter was also abandoned. At the same time, a working party was set up to examine the possibility of simplifying the $\frac{1}{4}$- and 1-ton vehicles.

By 1955, a research paper considering the future of the CT range stated 'there is no doubt that the combat range has had an unfortunate history... of the three types so far produced, only one, the 1-ton vehicle, can be regarded as successful and even this vehicle suffered from serious defects when it first appeared... the final verdict on the combat range will almost certainly be that the design is too complex, causing difficulty in maintenance, that they are unreliable in service, and that they are much too costly'.

INTRODUCTION

● Constructed by Leyland, the FV1200 was a 30-ton CT-rated tractor designed for hauling heavy artillery; other planned variants included a number of tractors for semi-trailer, and a 'super heavy' recovery vehicle. Just two prototypes had been constructed when the project was abandoned.

● Essentially a militarised version of the company's LC4, a 1 $\frac{1}{2}$ -ton 4x2 civilian truck, the Morris Commercial MRA1 was rated at 1 ton and was produced as a cargo vehicle, welding truck, dry-air charging vehicle, and water tank carrier. Like the Austin K9WD it was intended as a GS equivalent to the FV1600 Humber.

Ten years had elapsed since the beginnings of this project and only two vehicles had been produced in quantity... the $\frac{1}{4}$-ton 4x4 Austin, popularly known as the Champ, and the 1-ton 4x4 Humber truck, with a third, the 10-ton Leyland 6x6 Martian successfully prototyped and in limited production. The 3-ton, 20-ton and 60-ton CT vehicle projects had been cancelled.

However, as if to further demonstrate the folly of this approach, vehicles in the GS category had turned out to be surprisingly successful. In the $\frac{1}{4}$-ton class, the Land Rover proved, if not equal to the Champ, then at least able to give its big brother a run for the not inconsiderable sums of money that had already been spent... the Land Rover cost less than half the price of the Champ! The 1-ton Morris-Commercial MRA1 and the Austin K9 proved more than capable when compared to the equivalent Humber and, again, both were considerably cheaper. In the 3-ton class, the Bedford RL replaced the abandoned Vauxhall FV1300, whilst the Albion FV14001 and the Thornycroft Nubian, in 6x6 form, introduced a new 5-ton class. And if not quite up

● The 10-ton GS Leyland Hippo was an updated version of the wartime vehicle of the same name, and was in production between 1952 and 1959, with some 20 variants produced, mostly for the RAF. This example was photographed at the FVRDE exhibition in 1954.

Top: Seen at the FVRDE exhibition in 1954, the 20-ton Scammell Constructor was a GS-rated tractor, produced in three variants; two were fitted with a ballast body, the third was equipped with a fifth wheel. The 20-ton rating was not originally part of the FVRDE programme, but was added subsequently.

Left: The Scammell Explorer was a GS-rated 10-ton recovery vehicle, with a total of 726 examples constructed. Production was started in 1950 and continued until 1955.

Bottom: Rated at 10 tons and classified GS, the Thornycroft Big Ben was a militarised version of a civilian vehicle. Two variants were produced: a long-wheelbase cargo vehicle, and a short-wheelbase tractor for semi-trailer. The truck was in production between 1952 and 1955.

to the standard of the Leyland Martian, the 10-ton AEC Militant was certainly more than adequate... and the Scammell Constructor took care of both the 20-ton class and the previously overlooked 30-ton category.

Perhaps the biggest climb-down of all, though, was the 60-ton tractor. Leyland had constructed one prototype... a huge, Meteorite-engined monster that was dubbed 'Brontosaurus' and which, together with a 60-ton semi-trailer, was intended to provide a prime mover for the Conqueror tank. The prototype was put through its paces at FVRDE, but factors such as cost and weight eventually led to it being upstaged and replaced by the essentially-commercial Thornycroft Antar!

It was obvious that the CT vehicles were way too expensive and, that perhaps the motor industry did actually know a thing or two about vehicle design. In 1956, the CT classification was abandoned, and all of those vehicles that had actually been produced were downgraded to GS. The 'FV' drawing-office numbers continued to be used to

INTRODUCTION

● The Thornycroft Antar, seen here in Mk 2 fifth-wheel guise, probably needs little introduction. The truck was designed as an oil-field tractor and proved itself in the deserts of Iraq. In 1951, it was adopted by the British Army as a GS tank-transporter tractor to replace the FV1000. *(Simon Thomson)*

● Powered by a Meteorite petrol engine, the original Antar was rated at 30 tons, but this was subsequently increased to 60 tons for the later Mks 2 and, seen here, for the diesel-powered Mk 3 which went into production in 1959.

● Classified GS, and rated at 3 tons in 4x4 guise, and 5 tons when fitted with a 6x6 drive-line, the Rolls-Royce powered Thornycroft Nubian was a post-war continuation of a wartime truck. *(PM Photography)*

● The Vauxhall FV1300 was a three-axle CT-rated truck designed for use as an artillery tractor or as a cargo vehicle. It would be fair to say that it was not a success... the contract eventually passed from Vauxhall to Albion before the project was cancelled altogether. Just eight or nine vehicles were produced.

identify vehicles until the mid-eighties before they, too, were abandoned in favour of NATO asset codes.

I can't decide whether this was a sorry story of incompetence, or a bold experiment that proved unaffordable but, during the years 1950 to 1955 the Army spent £30 million a year on the CT scheme and yet just three types of vehicle were produced... and, by all accounts, even these were far from wholly satisfactory. But, for better or worse, a lot of new vehicle types were acquired in the 'fifties and by the end of the decade, although there were notable exceptions, most of the WW2 vehicles had been sold or given away.

Gathered together in these pages, perhaps for the first time since the publication of the FVRDE Exhibition catalogues in 1954 and 1956, is a description of those CT and GS rated British military vehicles from the 'fifties. You might choose to describe some of them as being 'a good idea at the time', or as a bold experiment... or maybe you have an alternative view.

Note that I have omitted a handful of specialised vehicles which do not form part of this pattern, such as the FV13581 Albion Clansman, the FV651 Alvis Salamander airfield fire-crash tender, and the FV13104 Austin FE 3-ton truck which never progressed beyond the prototype stage.

Pat Ware
Series editor

ABOUT THE AUTHOR

Pat Ware has been a professional writer for more than 50 years. He is the author of more than 60 vehicle-related titles, and has specialised in military-vehicle subjects since 1995. His expertise is recognised worldwide, and his books have been translated into a half-dozen languages. This title is the seventh in the '*Military Trucks Archive*' series, the first five titles covering five generations of British tank transporter, and the sixth describing the military vehicles of AEC.

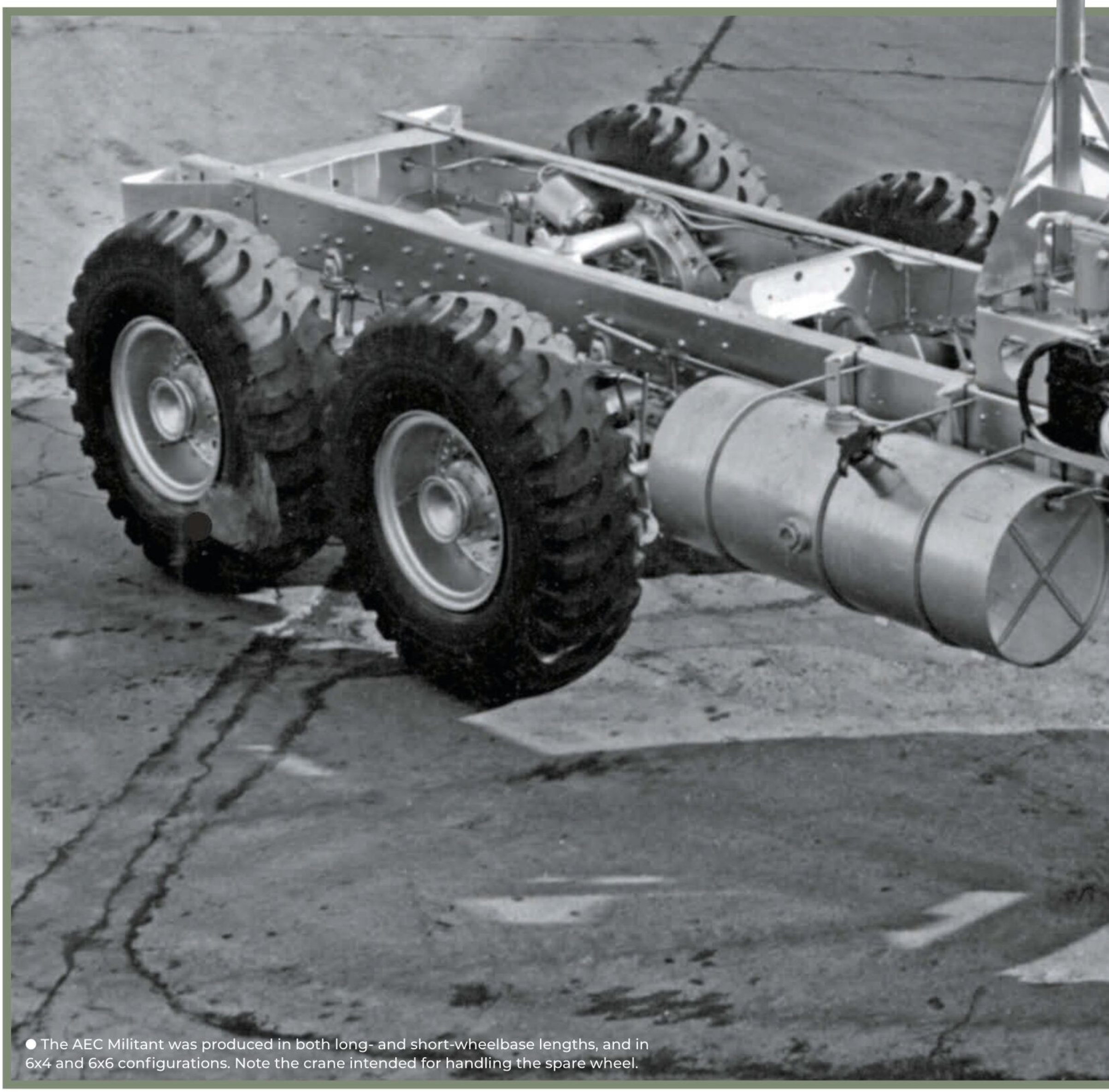
In 2001, he was the founding editor of the UK's leading military-vehicle magazine, '*Classic Military Vehicle*', and he continues to contribute to respected military-vehicle journals in the USA and France. In 2015 he contributed to a 10-part TV show, '*War on Wheels*', for China Central Television.

His eclectic interests have also led to the publication of titles on subjects as diverse as the Cold War, commercial haulage, and a couple of iconic agricultural tractors.

AEC

The mighty 10-ton Militant

Founded in June 1912 at Walthamstow, AEC quickly grew to become a major supplier of trucks and buses across the world. Production was moved to Southall in 1926, remaining there until the factory was closed in 1979, by which time AEC had been owned by Leyland for 17 years.



● The AEC Militant was produced in both long- and short-wheelbase lengths, and in 6x4 and 6x6 configurations. Note the crane intended for handling the spare wheel.

The company constructed some 10,000 examples of the 3-ton Y-Type truck for the War Office during WW1, as well as supplying smaller numbers of the B-Type and X-Type. During the 'thirties, military production included the 3-ton Marshal 6x4, the R6T/Model 850 artillery and recovery tractor, the design of which was acquired from FWD Motors when that company was bought out by AEC in 1932, and the iconic Matador medium artillery tractor. A 5-ton 6x6 chassis was developed out of the Matador, and was used as the basis for a refuelling tanker for the RAF, and as a mobile crane. A number of armoured vehicles were also developed including armoured cars, flame-throwers, self-propelled guns, and armoured command posts.

Post-war military vehicles included the 10-ton Militant, which was produced in both 6x4 and 6x6 configuration, as well as in long- and short-wheelbase variants.

AEC MILITANT 6x4 and 6x6, FV11000 SERIES

Manufactured in a choice of wheelbase lengths, and in 6x4 and 6x6 drive-line configurations,

● FV11008 was described as an 18ft drop-side cargo truck.

the Militant was typical of AEC's rugged no-nonsense approach to truck design, and was a fitting replacement for the wartime Matador. It was largely based on commercial components and development started in 1951, with the truck going into production the following year and continuing until 1964. It acquired a reputation for reliability, and enjoyed a long service life, with some examples still operating well into the 'nineties. Often remembered fondly by their National Service drivers, the rhythmic sound of the low-revving engine when idling earned these trucks the nickname 'knockers'.

● Later in life, many cargo vehicles were fitted with a Hiab hydraulic crane behind the cab... in this form, the vehicles were described as 'crane appliance lorry mounting' (CALM).

● One of the Militant's main roles was as a tractor for a heavy anti-aircraft gun. Both 6x4 and 6x6 chassis were equipped in this way, designated FV11001 and FV11002, respectively. The photograph shows the FV11002 variant and was taken outside AEC's Southall works.

The Militant was one of four GS equivalents to the CT-rated Leyland Martian series, and was powered by AEC's A223 six-cylinder diesel engine, driving through a five-speed gearbox and two-speed auxiliary gearbox that also provided transfer gears for the 6x6 variants. Suspension consisted of semi-elliptical springs, inverted at the rear to support the centrally-pivoted bogie. Sharing the same basic steel-framed and panelled cab design, a total of 20 variants were produced, the first to appear being a GS cargo truck fitted with a drop-sided steel body. By 1954, this had been joined by a winch-equipped artillery tractor intended for use with, for example, the 40mm Bofors anti-aircraft gun or the 5.5in or 7.2in howitzers, and providing accommodation for a seven-man gun crew, together with stowage for 10,000 lb (4500kg) of ammunition or other supplies.

● Two types of hydraulic tipper were available, both fitted with bodies by Edward Brothers. FV11004 was a 6x4 end tipper, whilst FV11005 was a three-way tipper.

Top: The 6x4 chassis of FV11013 was modified by All Wheel Drive of Camberley to incorporate a rigid walking beam at the rear, deeper side members, and over-sized tyres; the cab was also modified to provide clearance for the crane jib in the travelling position. The crane was a 6-ton KL66 manufactured by K&L Steel Founders and Engineers.

Middle: Demobbed Militants were popular with, for example, heavy recovery companies, and timber and forestry contractors. This short-wheelbase chassis, which may well have started life as a tractor for semi-trailer (FV11010 or FV11015) has been fitted with a simple recovery crane. *(PM Photography)*

Bottom: In 1966, London Transport purchased a pair of surplus Militant cargo vehicles and had them fitted with crew cabs and recovery equipment by Boughtons of Amersham. This example, 1457MR, was based at Cricklewood garage before finally being sold to a collector in 1983. *(PM Photography)*

Top Left: FV11009 was a Militant 6x4 five-compartment 2500-gallon fuel tanker, with a chain-driven pump, and with tank equipment supplied by Yorkshire Engineering & Welding or Darham Industries (London).

Top Right: Nick-named 'knocker' on account of the distinctive noise the engine made when idling, the Militant was a rugged and reliable truck, some examples of which remained in service until the mid-eighties or beyond. However, with its coach-built cab and prominent radiator, it always looked decidedly old fashioned!

Middle Left: Right-hand side view of the 6x6 artillery tractor (FV11002). Note the curiously flimsy and unnecessarily-complex rear mudguard.

Middle Right: This photograph shows a 6x6 Militant which is carrying a Coles 7-ton diesel-electric bridging crane (FV11003). Apparently, the vehicle could be steered and driven at low speeds from the crane cab. *(PM Photography)*

Bottom Left: Looking decidedly the worse for wear, and photographed at the end of its military career, this is an FV11016 cargo vehicle fitted with a Hiab crane. *(PM Photography)*

Bottom Right: Although according to my sources this doesn't exist and should be a 6x4 drive-line, clearly it is a Militant 6x6 fitted with a Jones KL66 6-ton crane. *(PM Photography)*

● Militant 6x4 18ft cargo vehicle (FV11008). *(PM Photography)*

There were two types of tipper truck – FV11004 was an end tipper, whilst FV11005 had three-way tipping gear – a tractor for semi-trailer, and a 2500-gallon (11,350 litre) fuel tanker; some of the last-named were subsequently rebuilt for air-portability. There were also development vehicles fitted with a self-loading tipping platform for the Royal Engineers.

Other variants included a mobile excavator, which mounted a Blaw-Knox BK50 Mk 3 dragline, and two types of mobile crane, equipped with either a 7-ton diesel-electric Coles Mk 5 or Mk 7, or a 6-ton petrol-engined Jones KL66 fully-rotating crane. Using a deeper frame, all three of these vehicles were jointly produced by AEC and All-Wheel Drive Limited, and were fitted with rigid walking beams in place of the standard rear bogie and suspension.

An improved Mk 2 variant was produced in 1959, designated FV11041 and FV11042, and equipped with an AV690 multi-fuel engine. Production of the Mk 2 was cancelled after less than a dozen prototypes had been produced and it wasn't until the 'sixties that the Mk 3 appeared.

● Another day... another scrapyard! *(PM Photography)*

TECHNICAL SPECIFICATION

Production: 1952-64.

Number produced: 3200.

Automotive details

Engine (Mk 1 vehicles): AEC A223; 11,310cc (690in³); six cylinders; bore and stroke, 130x142mm; direct-injection diesel; overhead valves; power output, 145bhp (108kW).

Engine (Mk 2 vehicles): AEC AV690; 11,310cc (690in³); six cylinders; bore and stroke, 130x142mm; direct-injection multi-fuel diesel; overhead valves; power output, 192bhp (143kW).

Transmission: 5F1Rx2; 6x4 or 6x6 according to model.

Suspension: live axles, front and rear on semi-elliptical springs; telescopic shock absorbers at front; springs inverted at rear; mobile crane and excavator equipment with unsprung walking-beam rear axles.

Brakes: compressed air.

Electrical system: 24V.

Dimensions (Model 0860, artillery tractor, FV11002)

Length, 289in (7353mm); width, 96in (2438mm); height 116in (3063mm).

Wheelbase, 155in (3924mm).

Bogie centres, 54in (1372mm).

Weight, unladen, 23,072 lb (10,487kg); laden, 34,562 lb (15,710kg).

Dimensions (Model 0859, 18ft cargo vehicle, FV11008)

Length, 338in (8585mm); width, 98in (2489mm); height 142in (3607mm).

Wheelbase, 192in (4880mm).

Bogie centres, 54in (1372mm).

Weight, unladen, 23,184 lb (10,538kg); laden, 45,542 lb (20,700kg).

Performance: maximum road speed, 25mph (40km/h); off-road, 12mph (19km/h).

Variants

FV11001	Tractor, 10 ton, 6x4, GS, medium/heavy anti-aircraft
FV11002	Tractor, 10 ton, 6x6, GS, medium/heavy anti-aircraft
FV11003	Truck, 10 ton, 6x6, GS, with 7-ton Coles crane
FV11004	Truck, 10 ton, 6x4, GS, tipper
FV11005	Truck, 10 ton, 6x4, GS, tipper, three-way
FV11006	Truck, 10 ton, 6x4, GS, fuel tanker, 2500 gal
FV11007	Truck, 10 ton, 6x4, GS, cargo, drop-side, 14ft
FV11008	Truck, 10 ton, 6x4, GS, cargo, drop-side, 18ft
FV11009	Truck, 10 ton, 6x4, GS, fuel tanker, 2500 gal
FV11010	Tractor, 10 ton, 6x6, GS, for semi-trailer
FV11011	Truck, 10 ton, 6x6, GS, crane, missile
FV11012	Truck, 10 ton, 6x4, GS, cargo, drop-side
FV11013	Truck, 10 ton, 6x4, GS, with 6-ton Jones crane
FV11014	Truck, 10 ton, 6x6, GS, excavator
FV11015	Tractor, 10 ton, 6x6, GS, for semi-trailer
FV11016	Truck, 10 ton, 6x6, GS, cargo, drop-side, 18ft
FV11017	Truck, 10 ton, 6x4, GS, self-propelled launcher
FV11018	Truck, 10 ton, 6x6, GS, cargo, with winch
FV11019	Truck, 10 ton, 6x4, GS, tanker HTP, 1500 gal
FV11021	Truck, 10 ton, 6x6, GS, tipping platform, self-loading, RE
FV11022	Truck, 10 ton, 6x6, GS, heavy-duty cargo
FV11031	Tractor, 10 ton, 6x6, GS, light anti-aircraft
FV11041	Tractor, 10 ton, 6x6, GS, medium/heavy anti-aircraft
FV11042	Truck, 10 ton, 6x4, GS, cargo, drop-side

ALBION MOTORS

The 10-ton WD.HD23, and the 5-ton WD.66N

Albion could trace its history back to the beginning of the 20th Century when the Albion Motor Car Company was established in Glasgow by Norman Fulton, John Henderson and Thomas Murray. The company produced its first commercial vehicle in 1902 and, by 1910, had developed the A10, a chain-driven 3-ton truck which remained in production for 16 years.

● Prototype for the Albion WD.HD23N (FV11101) 10-ton cargo vehicle photographed during an extended trials period, some of which was conducted in South Africa.

During WW1, Albion supplied thousands of subsidy trucks to the War Office, resuming civilian production in 1919. Twenty years later, the company's contribution to WW2 was the CX22S heavy artillery tractor, the CX24S 20-ton tank transporter, which was considered a failure and subsequently downgraded to 15 tons, and 3- and 10-ton cargo trucks. There was also an experimental twin-cabbed 8x6 tank transporter dubbed CX33, which never entered production.

● There were two versions of the Albion WD.HD23N machinery truck, one equipped for the Royal Engineers, the other for the Royal Electrical & Mechanical Engineers (REME). This is the REME version (FV11102).

Top Left: Interior view of the heated and insulated workshop body. Again, this is the REME variant.

Top Right: Albion WD.HD23S short-wheelbase three-way tipper (FV11105). The 7yd³ (5.35m³) hydraulically-tipped steel body could be tipped to a maximum 50° to either side or to the rear, and was supplied by B&E Tippers, better known perhaps as Edbro.

During the post-war years, the company supplied examples of the 10-ton WD.HD23N and WD.HD23S trucks, as well as just 61 examples of the 3-ton Clansman FT103N designed to mount a REME machinery body. There were also nine prototypes for the Rolls-Royce powered WD.66N artillery tractor.

In 1951, Albion was acquired by Leyland who gradually exerted more and more control over the company's products, and, although production continued at the Glasgow factory, the name disappeared in 1972.

ALBION WD.HD23N and WD.HD23S, FV11100 SERIES

Designed as an alternative to the AEC Militant, and, like the Militant, based largely on commercial components, the Albion WD.HD23 was a militarised 10-ton 6x4 truck, developed from the company's commercial HD (heavy-duty) range which had been introduced in April 1950. A total of eight variants were produced, supplied on two wheelbase lengths, including 18ft and 14ft cargo vehicles; two types of insulated and well-equipped workshop/machinery trucks; three-way and end tippers; a 2500-gallon fuel tanker; and a mobile crane, equipped with either a Jones KL66 4- or 6-ton fully-slewing crane.

The power unit was Albion's six-cylinder EN257C petrol engine driving the rear wheels through a five-speed main gearbox, with a two-speed

TECHNICAL SPECIFICATION: FV11100

Production: 1951-52.

Number produced: 500.

Automotive details

Engine: Albion EN257C; 10,454cc (638in³); six cylinders; bore and stroke, 121x152mm; petrol; overhead valves; power output, 160bhp (104kW).

Transmission: 5F1Rx2; 6x4.

Suspension: live axles, front and rear on semi-elliptical springs; springs inverted at rear.

Brakes: compressed air.

Electrical system: hybrid 12V/24V.

Dimensions (WD.HD23N long-wheelbase variants)

Length, 323in (8204mm); width, 99in (2515mm); height to top of cab, 108in (2743mm).

Wheelbase, 192in (4877mm).

Bogie centres, 54in (1372mm).

Weight, unladen, 21,600 lb (9810kg); laden, 46,100 lb (20,930kg).

Dimensions (WD.HD23S short-wheelbase variants)

Length, 270in (6858mm); width, 99in (2515mm); height 118in (2985mm).

Wheelbase, 159in (4039mm).

Bogie centres, 54in (1372mm).

Weight, unladen, 22,624 lb (10,270kg); laden, 45,136 lb (20,510kg).

Performance: maximum road speed, 27mph (44km/h); off-road, 12mph (19km/h).

Variants

FV11101	Truck, 10 ton, 6x4, GS, cargo, 18ft
FV11102	Truck, 10 ton, 6x4, GS, machinery, RE
FV11103	Truck, 10 ton, 6x4, GS, with 6-ton crane, fully-slewing, GP
FV11104	Truck, 10 ton, 6x4, GS, tipper (end only)
FV11105	Truck, 10 ton, 6x4, GS, tipper (3-way)
FV11106	Truck, 10 ton, 6x4, GS, fuel tanker, 2500 gal
FV11107	Truck, 10 ton, 6x4, GS, machinery, REME
FV11108	Truck, 10 ton, 6x4, GS, cargo, 14ft

● Like the AEC Militant, the 10-ton Albion WD.HD23N could be fitted with a Jones KL66 general-purpose 4- or 6-ton crane, in which guise it was designated FV11103.

● FV11105 three-way tipper in very straight condition but, judging by the lot number (1165) clearly assigned to auction. *(PM Photography)*

● Ex-military Albion WD.HD23N long-wheelbase chassis that has been fitted with a civilian flat-bed body, but which has clearly reached the end of the road. *(PM Photography)*

● Rolls-Royce engined Albion WD.66N equipped with a steel body for the 5-ton cargo role (FV14001).

● Chassis-cab for the FV14000 series destined to be equipped as a medium recovery with a 4-ton recovery crane and a 15-ton winch... the contract was cancelled before the work was completed.

● FV14001 cargo variant fitted with FVRDE 'test body number 3'.

auxiliary 'box, and the suspension was the usual arrangement of semi-elliptical springs, inverted at the rear.

Typically perpendicular, the steel-panelled cab provided accommodation for two men; the rear cargo body was of steel construction, and short-wheelbase cargo vehicles were fitted with a chassis extension at the rear to accommodate the body.

Following a period of testing, at least some of which took place in South Africa, production started in 1951, but, within less than six months, Albion had been taken over by the ever-expanding Leyland empire. A total of 500 examples are believed to have been constructed before the production line was closed down in 1954.

ALBION WD.66N, FV14000 SERIES

In April 1951, Albion Motors agreed to take over the FV1300 project from Vauxhall. Although some 600 vehicles were ordered, the contract was cancelled before it even started. A new contract was issued to Albion in 1955 for the Model WD.66, or FV14000 series, a 5-ton 6x6 truck apparently based on the wartime FT15N, using existing components as far as possible.

Power came from an eight-cylinder Rolls-Royce B80 engine, producing 160bhp from a capacity of 5675cc (346in³), driving through a five-speed gearbox, together with a two-speed transfer case. The rear axles were of the overhead worm design, whilst the front axle employed spiral bevel gears. Suspension was by means of conventional semi-elliptical springs, with telescopic shock absorbers on the front axle; each of the rear axles had its own pair of springs.

The semi-forward control layout meant that the truck had a slightly curious appearance, or maybe distinctive would be a better description, with a sloping front to the cab, from which protruded a snub-nosed engine compartment topped off by an almost square radiator grille. The steel-panelled rear body of the cargo vehicle was manufactured by Acton-based Strachans (Successors) Limited.

Planned variants included cargo and recovery vehicles, both of which were constructed in prototype form, albeit the latter lacked the vital recovery gear, which was to comprise a 15-ton mechanical winch and 4-ton hydraulic crane. Other variants were planned, and would have included ammunition carrier, bridge loader, field artillery tractor, tank supply, and troop carrier. Just nine vehicles were produced before this contract, too, was terminated in 1956.

TECHNICAL SPECIFICATION: FV14000

Production: 1953-56.

Number produced: nine, prototypes only.

Automotive details

Engine: Rolls-Royce B80; 5675cc (346in³); eight cylinders; bore and stroke, 89x114mm; petrol; overhead inlet valves, side exhaust; power output, 160bhp (104kW).

Transmission: 5F1Rx2; 6x6.

Suspension: live axles, front and rear on semi-elliptical springs, with shock absorbers on front axle.

Brakes: hydraulic with compressed air assistance.

Electrical system: 24V.

Dimensions

Length, 282in (7163mm); width, 96in (2438mm); height, 129in (3277mm).

Wheelbase, 150in (3180mm).

Bogie centres, 52in (1322mm).

Weight, unladen, 15,900 lb (7220kg); laden, 28,000 lb (12,710kg).

Performance: maximum road speed, 35mph (56km/h); off-road, 15mph (24km/h).

Variants

FV14001	Truck, 5 ton, 6x6, GS, cargo
FV14004	Truck, 5 ton, 6x6, GS, medium recovery

AUSTIN MOTOR COMPANY

Britain's answer to the Jeep, and the 1-ton 4x4 K9

Despite having previously produced a handful of vehicles under the Wolseley name, the Austin Motor Company can trace its origins back to 1905 when Herbert Austin founded the company in a disused printing plant at Longbridge, Birmingham. By 1914, the company had produced more than 3000 motorcars and had already started to manufacture ambulances and commercial vehicles. During WW1 the company's workforce quickly expanded from around 2,500 to 22,000, and Austin became more profitable, fulfilling government contracts for aircraft, trucks, shells, guns and generating sets.

● The first incarnation of the FV1800 project was the Wolseley Mudlark. Like the Champ, it was powered by a Rolls-Royce B40 engine and featured all-round independent suspension by means of torsion bars.

Some 1,600 3-ton trucks were manufactured for the War Office between 1914 and 1918, with many going to Russia, and, like many other companies, Austin also supplied numerous armoured cars, ambulances, staff cars and lighter trucks. During the inter-war years, the company supplied examples of the tiny Austin 7 for use as a cavalry reconnaissance vehicle and as a staff car for junior officers, as well as the 15cwt BYD truck.

WW2 production included the 8HP and 10HP staff cars, a 10HP light utility, the K2Y ambulance, which was also supplied to other nations, and numerous trucks, including 30cwt, 2-ton and 3-ton 4x2 cargo trucks, a 3-ton 4x4 truck, and 3-ton 6x4, with some examples bodied as signals, crane and recovery vehicles. Total production of motor vehicles by Austin during WW2 was more than 120,000; the company also produced items such as ammunition, tank suspension units, steel helmets, jerrycans, gun magazines, and, of course, aircraft and aircraft components.

Post-war purpose-built military vehicles included the Champ, and the 1-ton K9WD; the company also prototyped a possible $1\frac{1}{2}$-ton 4x4 truck in 1966 against other contenders from Bedford, Commer and Land Rover. Standard commercial vehicles were also supplied to the services, including numerous staff cars, as well as examples of the K4DE Loadstar 1- and 3-ton trucks, and the Gypsy utility vehicle.

● The contract for producing 15,000 examples of the FV1801, in two variants, went to the Austin Motor Company. The contract was cancelled after just shy of 13,000 vehicles had been produced.

● The Champ divided opinion... some of the National Service drivers thought it was the best thing since sliced bread... other hated it, claiming it was hard to service, unreliable and too heavy. Sadly, it never seems to have shaken off these opinions.

● Under the bonnet was a 2838cc (173in³) Rolls-Royce B40 engine, the smallest of the superb standardised 'B Range'. Other CT-rated vehicles were powered by variations of this same engine which was produced in four-, six- and eight-cylinder form.

In 1952, 'the Austin' as it was known by West Midlands' locals, merged with Morris Motors Limited, who of course owned the MG, Wolseley and Riley companies, to form the British Motor Corporation Limited. The component parts of BMC were never properly consolidated, continuing to compete with one another for market share, and in 1968, BMC was taken over by Leyland to form the British Leyland Motor Corporation.

AUSTIN CHAMP WN1, FV1800 SERIES

Entering service in 1952, the Champ typified everything that was good about the post-war CT vehicles programme. It was fast and comfortable and offered superb off-road performance by virtue of its independent torsion-bar suspension. It could wade through more than six feet of water with considerably less preparation than its WW2 counterparts, and its 24V electrical system was both waterproofed and screened against electrical interference. A two-speed dynamo was fitted to radio vehicles ensuring that the batteries would not run flat should it be necessary to run the radio for long periods of time with the engine idling.

Unfortunately, at the same time, it also typified everything that was wrong with the programme.

Work had started as far back as 1945 and the Champ spent far too long in development and, with the average price working out at £1200 per vehicle, was also way too expensive. The standardised Rolls-Royce engine, which was good for 200,000 miles (320,000km), was a superb piece of work but it, too, was also extremely expensive and way too well engineered for what was, essentially, a replacement for the Jeep. The transfer case and the forward and reverse gears were combined with the rear axle, and although this allowed the user to advance or retreat with equal facility, poor design also led to oil starvation and axle problems. And, finally, the measures that were taken to both waterproof and screen the electrical system added a layer of complexity that greatly increased maintenance time.

But, back to the beginnings of the project... some preliminary design work was carried out on what was described as the Morris Gutty in 1946/47, with three prototypes eventually constructed and subjected to trials. However, the vehicle exhibited so many failings that it was deemed necessary to go 'back to the drawing board'. A new specification was issued in 1948, with a total of 12 preproduction vehicles produced, this time by Nuffield Mechanizations. Although the torsion-bar suspension arrangements as used on the Gutty were retained, the Mudlark was

● The torsion-bar suspension gave an exceptionally smooth ride, but the Champ acquired a reputation for instability if cornered too fast. Although this vehicle has not overturned, it seems to be in a spot of bother and I can't tell if this is a real incident – in which case, how on earth did they do it – or whether it is a simulated accident designed to provide training for REME crews.

● Viewed from above, showing the seating arrangements for a crew of four. There was a stowage space behind the rear seat, but the squab could also be folded forward to provide a platform that increased the load-carrying area.

● Britain's post-war Army was obsessed with minimising the work necessary to allow a CT-rated vehicle to make an amphibious landing. In common with the Humber FV1600 and the Leyland FV1100, the Champ could be equipped with a snorkel that allowed the vehicle to wade to a depth of 78in (1980mm). This necessitated the driver standing and using a hand throttle.

● The Champ was produced in two factory variants, a cargo vehicle and one that was fitted for wireless/radio (FFW/FFR). Trials were conducted exploring the possibility of converting cargo vehicles to provide a battlefield ambulance, as had been done with the Jeep during WW2.

equipped with a Rolls-Royce B40 engine, driving all four wheels through a five-speed gearbox. The four-seat body was similar to the open-sided Jeep, and to the Champ that would follow, with notable differences being the front and rear mudguards.

During 1949/50, the Mudlarks were subjected to a series of trials at Chertsey, before being handed over to the Army for long-term troop and user evaluation. In 1951, one example was loaned to the Americans who put it through trials at Aberdeen Proving Ground.

Despite the inevitable difficulties, the Mudlark was considered to be sufficiently successful that the design was put out to contract, with the Austin Motor Company being the successful bidder. However, the contract for 15,000 vehicles was cancelled before production was complete and, in the end, only about 13,000 Champs were constructed... including some 400 which went to Australia. Two variants were produced of the basic FV1801 vehicle – cargo and FFW/FFW – together with a small number of examples of an FV1802 utility vehicle, with the chassis designation WN2; workshop modifications included an armoured patrol vehicle, field ambulance, cable layer, and machine-gun platform.

The last Champs were withdrawn from British Army service in 1966 in favour of the Land Rover.

In passing, it's worth pointing out that the name 'Champ' was actually borrowed from the de-militarised civilian version, which was briefly offered to commercial customers from 1953. Powered by the 2660cc (162in³) four-cylinder engine of the Austin A90, only very small numbers were built, almost certainly due to the price. The civilian Champ (WN3) was also used as the basis for the Firefly, a small fire-fighting vehicle produced by Fire Armour Limited.

AUSTIN K9WD, FV16000 SERIES

Dating from 1952, and effectively, a militarised version of the Austin Loadstar, the 1-ton K9WD was bodied for a number of roles, including, for example, cargo, radio communications, ambulance, water tanker, and radio repair, with a number of variants intended for the

● Rear view of the ambulance conversion showing the extension to the hood that was designed to keep the rain off the occupants; the spare wheel was carried on the bonnet top. The ambulance was designated FV1801A/2. *(PM Photograpy)*

TECHNICAL SPECIFICATION: FV1800

Production: 1952-56.

Number produced: 12,978.

Automotive details

Engine: Rolls-Royce B40 Mk2A/4 or Mk 5A; 2838cc (173in³); four cylinders; bore and stroke, 89x114mm; petrol; overhead inlet valves, side exhaust; power output, 80bhp (60kW).

Transmission: 5F5Rx2; 4x4.

Suspension: independent torsion-bar suspension, with hydraulic shock absorbers at all four wheels.

Brakes: hydraulic.

Electrical system: 24V.

Dimensions

Length, 144in (3658mm); width, 61in (1549mm); height, top up, 74in (1880mm), top down, 55in (1397mm).

Wheelbase, 84in (2134mm).

Weight, unladen, 3668 lb (1667kg); laden, 4480 lb (2036kg).

Performance: maximum road speed, 50mph (81km/h); off-road, 20mph (32km/h).

Variants

FV1801A	Truck, ¼ ton, 4x4, CT, cargo
FV1801A(i)	Truck, ¼ ton, 4x4, CT, FFW/FFR
FV1802	Truck, ¼ ton, 4x4, CT, utility

● **Top:** Although the Champ was soon to be superseded by the Land Rover, examples remained in service until about 1966. This vehicle looks for all the world as though it is awaiting disposal at auction, but intriguingly, is fitted with free-wheel hubs which would suggest that it is already in private hands. *(PM Photography)*

● **Bottom:** FV1802 was described as a 'utility vehicle', but there was to be no series production.

● **Top Left:** In 1952, Austin were given permission by the Ministry of Supply to also sell a de-militarised version of the Champ fitted with an Austin A90 petrol engine to civilian customers. Most would-be customers would have been put off by the price, but it is believed that 500 examples were constructed.

● **Top Right:** Rear three-quarter view of the Austin K9WD radio vehicle (FV16003) with its distinctive house-type body.

● **Middle Left:** FV16001 was a 1-ton cargo vehicle, fitted with a tarpaulin-covered steel body.

● **Middle Right:** Camouflaged FV16003 radio truck. The enclosed steel cab of the K9WD was derived from that used on the Austin Loadstar range.

● **Bottom Left:** Although it has lost its distinctive red cross, this is the FV16005 'ambulance, crash rescue' developed for the Air Ministry. The ambulance bodies included provision for four stretcher cases or eight seated patients, and were built by Mann Egerton of Norwich, or Mickleover Transport of Park Royal. *(PM Photography)*

● **Bottom Right:** Preserved RAF 1-ton cargo vehicle (FV16001); note that not all of the K9WD production vehicles had the additional cooling slots in the nose. *(Simon Thomson)*

AUSTIN

● **Top Left:** FV16008 was a 200-gallon water tank; the tarpaulin cover helped to disguise the nature of the vehicle from aerial photography. *(PM Photography)*

● **Top Right:** Looking decidedly the worse for wear, this FV16001 cargo vehicle saw civilian service with a small garage where it acted as a towing vehicle. *(PM Photography)*

● **Bottom:** Appearing at the 1954 exhibition of military vehicles at FVRDE, FV16012 was described as 'K9WD Series 3' and was fitted with a BMC 5103cc (311kW) six-cylinder multi-fuel engine in place of the more usual 3995cc (244in^3) unit. Only small numbers were produced. *(Simon Thomson)*

RAF. The increased track and ground clearance were intended to suit the vehicle to military service.

Short and wide, it was a handsome enough vehicle using the standard civilian pressed-steel two-man cab, and the combination of a high ground clearance and wheel arch extenders managed to improve the rather droopy appearance of the original. A hip ring was fitted into the cab roof on some examples to allow the use of an anti-aircraft machine gun.

The thermally-insulated ambulance bodies were constructed by Mann Egerton of Norwich, or Mickleover Transport based in Park Royal, and water tanker bodies were built by six different companies including Butterfields, Bradley Engineering, and Thompson Brothers.

Power came from a six-cylinder overhead valve engine of 6995cc, driving through a four-speed gearbox and two-speed transfer case, giving a modest degree of off-road performance. A 5103cc multi-fuel/diesel version, described as 'Series 3', with a modified radiator grille, was trialled from 1956 in a restricted range of variants but was not standardised. The suspension consisted of live axles on semi-elliptical springs, with what was described as 'special rear suspension' fitted to the ambulance variants.

Around 9500 examples were constructed, and a small number of examples remained in service into the 'eighties.

TECHNICAL SPECIFICATION: FV16000

Production: 1952-56.

Number produced: more than 9500.

Automotive details

Engine: Austin; 3995cc (244in³); six cylinders; bore and stroke, 87x111mm; petrol; overhead valves; power output, 92bhp (69kW).

Multi-fuel engine: BMC; 5103cc (311in³); six cylinders; bore and stroke, 95x120mm; multi-fuel; overhead valves; power output, 90bhp (67kW).

Transmission: 4F1Rx2; 4x4.

Suspension: live axles on semi-elliptical springs, front and rear, with hydraulic shock absorbers.

Brakes: hydraulic.

Electrical system: 12V.

Dimensions FV16001 basic cargo variant

Length, 206in (5232mm); width, 86in (2184mm); height, top up, 104in (2642mm), top down, 94in (2388mm).

Wheelbase, 137in (3480mm).

Weight, unladen, 6300 lb (2864kg); laden, 10,192 lb (4632kg).

Performance: maximum road speed, 45mph (73km/h); off-road, 12mph (19km/h).

Variants

FV16001	Truck, 1 ton, 4x4, GS, cargo
FV16002	Truck, 1 ton, 4x4, GS, FFW/FFR
FV16003	Truck, 1 ton, 4x4, GS, wireless, light
FV16004	Truck, 1 ton, 4x4, GS, radio repair
FV16005	Truck, 1 ton, 4x4, GS, ambulance, crash rescue
FV16006	Truck, 1 ton, 4x4, GS, signals, E type body, RAF
FV16007	Truck, 1 ton, 4x4, GS, signals, I type body, RAF
FV16008	Truck, 1 ton, 4x4, GS, water tank, 200 gal, RAF
FV16009	Truck, 1 ton, 4x4, GS, water tank, 200 gal
FV16010	Truck, 1 ton, 4x4, GS, welding
FV16011	Truck, 1 ton, 4x4, GS, radar repair
FV16012	Truck, 1 ton, 4x4, GS, cargo, multi-fuel
FV16013	Truck, 1 ton, 4x4, GS, ambulance, crash rescue, multi-fuel
FV16014	Truck, 1 ton, 4x4, GS, signals, E type body
FV16015	Truck, 1 ton, 4x4, GS, DF light
FV16016	Truck, 1 ton, 4x4, GS, sensitivity test
FV16017	Truck, 1 ton, 4x4, GS, FATP test
FV16018	Truck, 1 ton, 4x4, GS, missile test equipment

BEDFORD

The ubiquitous 3-ton RL replaces the wartime QL

In November 1925, the British car manufacturer Vauxhall was purchased by the American company General Motors, and in 1929, production was transferred from Hendon to Luton. GM was keen to penetrate the British commercial-vehicle market, and in April 1931, launched a range of 'Anglicised' Chevrolet trucks under the name Bedford. The first offering was a 2-ton truck powered by a six-cylinder engine but, by 1939, there was a range of vehicles with capacities ranging from 12cwt to 5 tons.

● Early cargo-bodied RL, photographed in 1956, making short work of the FVRDE test slopes.

The War Office started buying Bedfords as early as 1932, either in the form of unmodified commercial vehicles or as commercial vehicles that had been lightly militarised. In 1937, Bedford submitted a prototype for what became the ubiquitous 15cwt MW to the War Office's annual vehicle trials in North Wales. Described as WD-1, the truck was constructed largely from commercial components, but the bodywork was notable for the square engine compartment, necessary to house the military air cleaner.

During WW2, the company continued to supply examples of the MW, with an eventual total of

● They can, and do, get stuck if the ground is soft enough... the crew seem proud of their achievement!

● Photographed wearing an early FVRDE civilian number plate, this fixed-side cargo RL has been fitted with chains on all four wheels to improve traction.

BEDFORD

● Drop-sided cargo variant of the RL, fitted with a hydraulic crane; the placing of the crane has meant that the spare wheel, generally stowed behind the cab, has been relocated under the chassis. *(Benno Knorr via Carl Schulze)*

● Early RL with house type body, painted sand and bearing the distinctive 'H' markings of the Suez debacle, 1956.

65,995 examples built; this was soon joined by the Models OX and OY, of which some 96,814 examples were constructed, and 52,247 examples of the four-wheel drive QL.

Although small numbers of other models were supplied during the post-war years, notably the bonneted TJ series, the period was dominated by the 3-ton 4x4 RL, an extraordinarily-capable truck based on the company's S Type 'Big Bedford'. A total of almost 75,000 examples were constructed between 1952 and 1969 when production ceased and the RL was replaced by the MJ/MK range.

In 1987, the Bedford manufacturing site in Dunstable, together with the rights to the larger Bedford products, was sold to AWD Trucks, who branded the vehicles AWD-Bedford. The failure to secure the contract for the replacement for the MJ/MK range, which went to Leyland, saw the company go into receivership in 1992, when it was bought by Marshall of Cambridge. The use of the name was finally discontinued in 1998.

● Royal Engineers bomb disposal team, with all of their equipment laid out in front of a Bedford RL.

Top Left: Cargo variant of the RL with modifications to allow the mounting of over-sized ellipsoid tyres to improve traction across very poor ground.

Top Right: Bedford RL with English Electric Blue Water missile, a British battle-field nuclear weapon intended to replace the MGM-5 Corporal. The Blue Water project was cancelled on 10 August 1962.

Middle Left: Head-on view showing the standard cab that was 'borrowed' from the S-Type 'Big Bedford'. This is the later version of the cab with increased cooling provision; the same change was made to the civilian cab.

Middle Right: RL with a charging set and a signals body; note the earthing connections on the grass verge. *(PM Photography)*

Bottom Left: Standard RL-based 3-ton cargo vehicle, complete with tarpaulin. This chassis was also supplied with an engine-driven winch.

Bottom Right: Royal Engineers' Bedford RL road layer. The coil of trackway material on the rear of the vehicle could be rotated through 90° and rolled out in front of the truck as it drives forward at a rate of one yard (914mm) a second... visibility is not great though! *(PM Photography)*

Top: The 4x4 RS chassis was used by the Royal Navy to produce this twin-boom recovery vehicle. The recovery equipment was supplied by Reynolds Boughton. *(PM Photography)*

Bottom: RAF aircraft pressure refuelling tanker. Note the 4x2 drive-line, and the modified exhaust arrangements, with the tail pipe under the front bumper.

● Chassis-cab with the late-style radiator grille and with large flashing direction indicators.

● Constructed on the RLC chassis, with rear bodywork by Marshalls, FV13115 was designated 'recovery vehicle, wheeled, light'. *(PM Photography)*

BEDFORD RL, FV13100 SERIES

Based on the 7-ton variant of the civilian S Type, which was advertised as the 'Big Bedford', work on the military RL began in December 1950, and the first prototype was delivered to FVRDE in May 1951. Following the usual programme of trials, and subsequent modification, the truck went into production in April 1952 and remained in the catalogue until 1969, by which time a total of more than 73,000 examples had been produced at Bedford's Dunstable plant.

It was a good-looking truck in that distinctive and somewhat rounded style so typical of the 'fifties but, at the same time, it was a rugged machine that quickly gained a reputation for hard work. Power came from the new 4927cc (300in³) six-cylinder overhead-valve petrol engine that had been developed for the S Type, producing 110bhp at 3200rpm, and later upgraded to give 130bhp (97kW); a number of diesel-engined variants were also produced. There was a four-speed gearbox and separately-mounted two-speed transfer case, and the suspension consisted of live axles on semi-elliptical springs.

Standard bodies included, for example, several types of cargo truck, tipper, fuel and water tankers, artillery tractor, house bodies for roles such as radar and automotive repair, four-stretcher ambulance, recovery vehicle, dental surgery, etc, with a total of 200 variants eventually

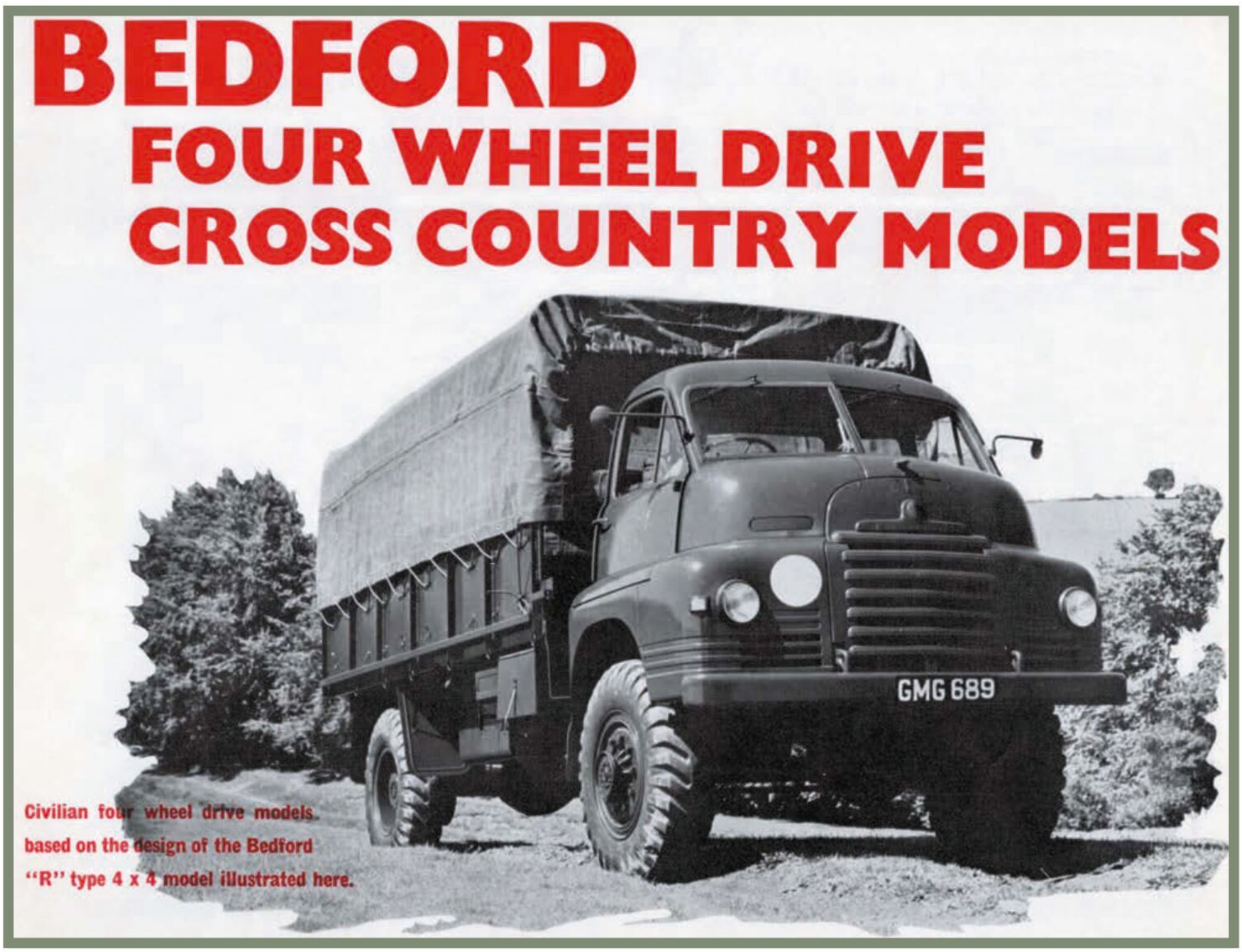
● With bodies assembled by Papworth Industries, Plaxtons, Duple, Park Royal, Weymann and others, the Bedford RLHZ 'Green Goddess' needs little introduction. Although often described as a fire appliance, and indeed the same chassis was used to mount a fire appliance body, the 'Green Goddess' is more correctly described as a self-propelled emergency pump unit.

produced, including some with rear-wheel drive only and others with twin rear wheels.

In 1968 the carrying capacity for the RL was increased from 3 tons to 4 tons without any automotive changes being made.

From late in 1953, the RLH was made available to the civilian market, and, in this form, was specified for the iconic RLHZ 'Green Goddess' self-propelled pump. A short wheelbase version (132in, 3353mm), identified as RS, appeared in 1961 and was specified for the military tipper and the light recovery vehicle.

The RL was the British Army's workhorse for nigh on 20 years, and was also supplied to Denmark, New Zealand, and Singapore. It was gradually replaced by the MK, and then the MJ, from 1970, with a small number soldiering on until the 'eighties.


BEDFORD
FOUR WHEEL DRIVE
CROSS COUNTRY MODELS
GMG 689
Civilian four wheel drive models
based on the design of the Bedford
"R" type 4 x 4 model illustrated here.

● In 1955, Bedford published this promotional leaflet for a civilian version of the RL, describing the vehicle as a 'four-wheel drive cross-country model'.

TECHNICAL SPECIFICATION

Production: 1952-69.
Number produced: 73,135.

Automotive details

Engine: Bedford; 4927cc (300in³); six cylinders; bore and stroke, 98x108mm; petrol; overhead valves; power output, 110bhp (82kW), later upgraded to 130bhp (97kW).

Transmission: 4F1Rx2; 4x4.

Suspension: live axles on semi-elliptical springs, front and rear, with hydraulic shock absorbers.

Brakes: hydraulic with air or vacuum servo assistance.

Electrical system: 12V.

Dimensions (FV13101 cargo vehicle without winch)

Length, 249in (6325mm); width, 94in (2388mm); height, top up, 120in (3048mm), top down, 100in (2540mm).

Wheelbase, 156in (3962mm), or 132in (3353mm).

Weight, unladen, 9576 lb (4352kg); laden, 16,500 lb (7500kg).

Performance: maximum road speed, 35mph (57km/h); off-road, 12-15mph (19-24km/h).

Variants

There are something like 200 different variants of the Bedford RL family, running from FV13101, which was a cargo vehicle, to FV13199, which was an air-portable 1000-gallon aircraft refueller. Certainly, there are too many to list here in detail and the following, the first 25 from the list, gives just a taste of the versatility of this chassis.

FV13101	Truck, 3 ton, 4x4, GS, cargo
FV13102	Truck, 3 ton, 4x4, GS, container, stores, binned
FV13103	Truck, 3 ton, 4x4, GS, charging, signals
FV13104	Truck, 3 ton, 4x4, GS, power generator and charging
FV13105	Truck, 3 ton, 4x4, GS, cargo, drop side
FV13106	Truck, 3 ton, 4x4, GS, fuel tanker, 800 gal
FV13107	Truck, 3 ton, 4x4, GS, mobile laboratory, electronic
FV13108	Truck, 3 ton, 4x4, GS, photographic
FV13109	Truck, 3 ton, 4x4, GS, cargo, FV body
FV13110	Truck, 3 ton, 4x4, GS, signals, GP, unfitted
FV13111	Truck, 3 ton, 4x4, GS, tipper, SWB, with winch
FV13112	Truck, 3 ton, 4x4, GS, cargo, drop side
FV13113	Truck, 3 ton, 4x4, GS, automotive repair shop
FV13114	Truck, 3 ton, 4x4, GS, general machinery
FV13115	Tractor, 3 ton, 4x4, GS, recovery, light
FV13116	Tractor, 3 ton, 4x4, GS, L170 gun
FV13117	Truck, 3 ton, 4x4, GS, LCP, no 3
FV13118	Truck, 3 ton, 4x4, GS, BCP, no 2
FV13119	Truck, 3 ton, 4x4, GS, RCP, no 1; Bedford RL
FV13120	Truck, 3 ton, 4x4, GS, water tank, 600 gal
FV13121	Truck, 3 ton, 4x4, GS, LCP (YT)
FV13122	Truck, 3 ton, 4x4, GS, regimental workshop test vehicle
FV13123	Truck, 3 ton, 4x4, GS, FATP test vehicle
FV13124	Truck, 3 ton, 4x4, GS, battery command trainer, Red Shoes
FV13125	Truck, 3 ton, 4x4, GS, regimental workshop test vehicle

COMMER CARS

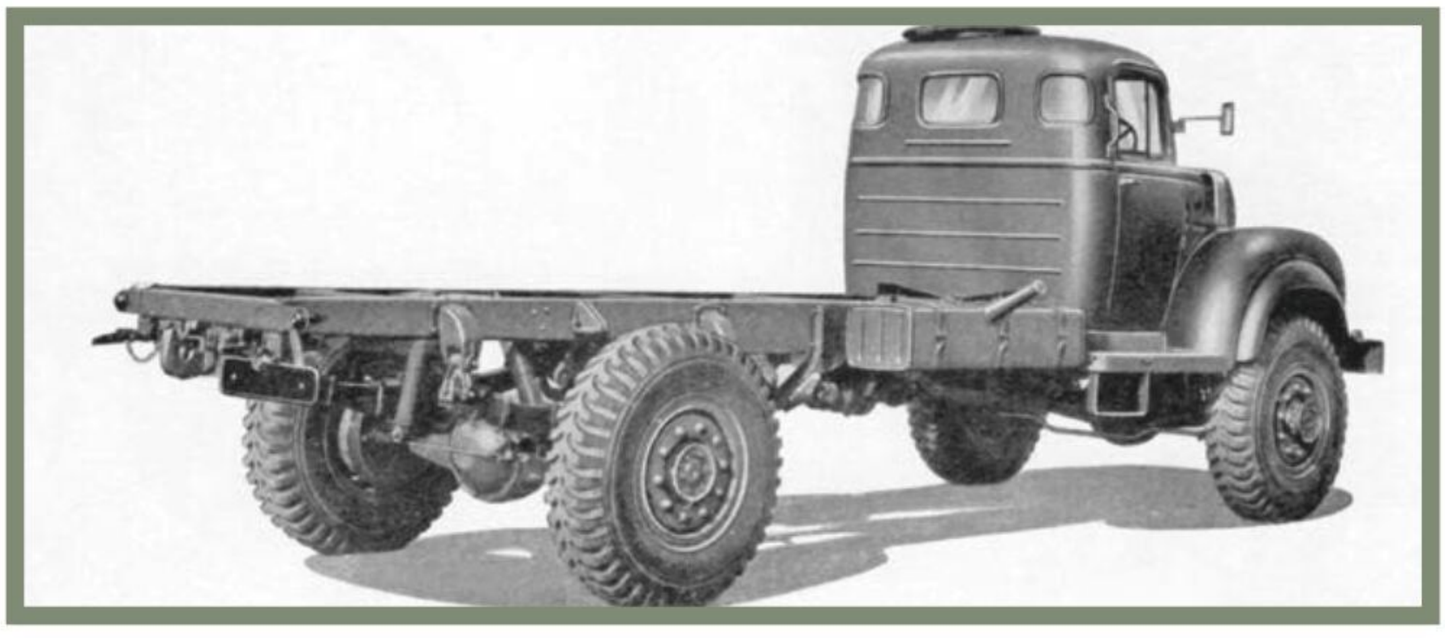
A brave new world of British soft-skin vehicles?

Founded in 1905, Commercial Cars Limited, always better known as Commer, produced its first motor vehicle, a 36HP bus chassis, in 1906. A year later the company submitted a vehicle for trials fitted with its unique pre-selector gearbox and the success of this led to the introduction of the 30cwt LC, and the 2 $\frac{1}{2}$ ton HC, both offered with a choice of body. Within another 12 months, these models were joined by the BC type fire engine chassis.

● Prototype for the Commer Q4, with test weights in place of a proper rear body, making short work of extremely bad ground.

In 1914, the company concentrated on producing some 3000 examples of the RC, a 4 ton 'Subsidy A' chassis, and a Red Cross field workshop based on the BC chassis. During the inter-war years, there were militarised versions of the Raider, Centaur and LN5 30cwt trucks, as well as the N1, a 25cwt truck bodied for use as an office.

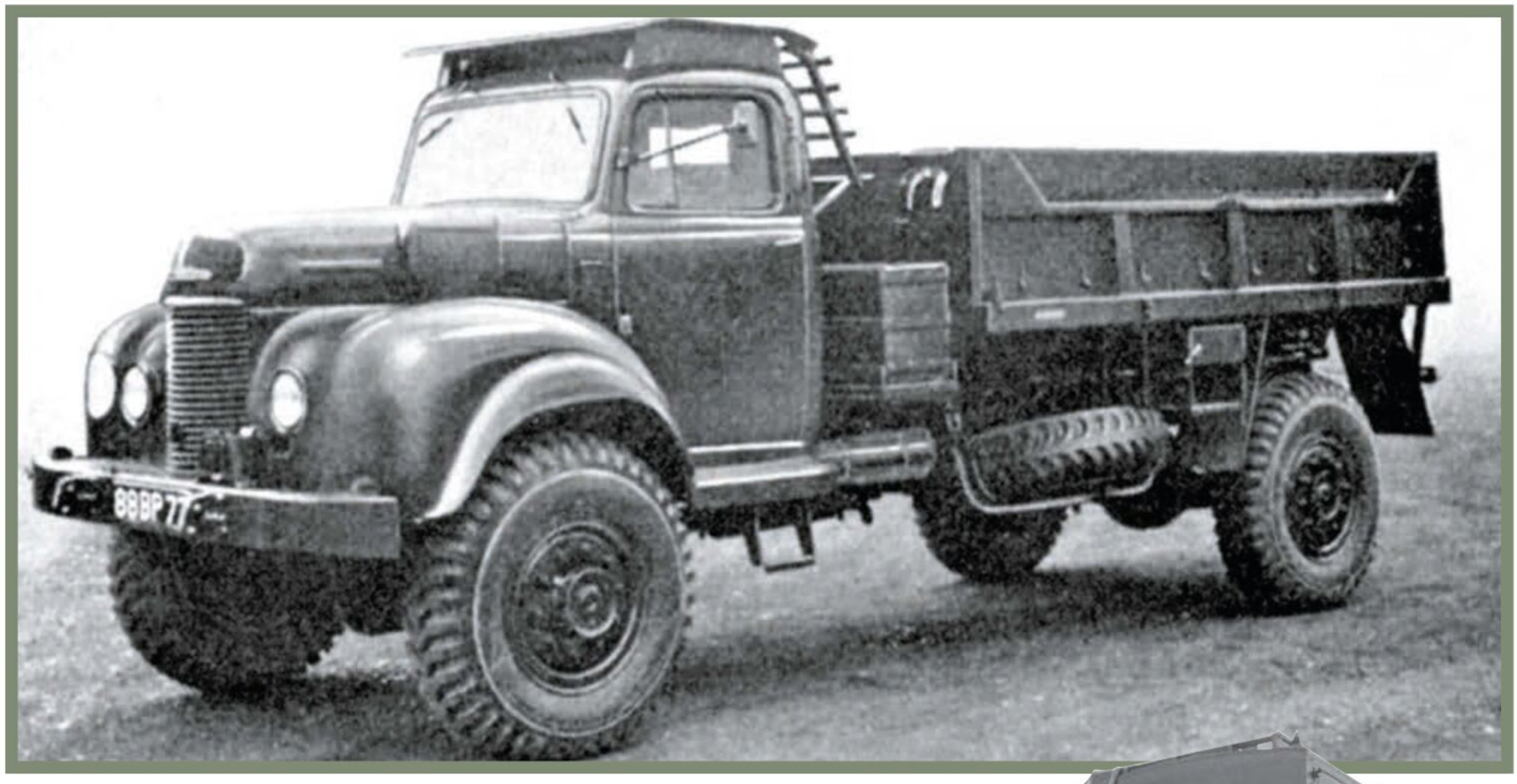
In 1926, Commer was struggling financially, leading to a take-over by Humber, and in 1931 Humber became



● Rear three-quarter view of the Q4 chassis-cab.

a 60%-owned subsidiary of the Rootes Group. In 1934, Rootes also acquired Karrier Motors, moving production from Huddersfield to Luton, where they shared production facilities with Commer. At the same time, the designs started to be modernised, with some standardisation across the products of the two companies.

During WW2, military production included various examples of the Superpoise range, including the 15cwt and 30cwt Q2, bodied as either a van or cargo vehicle; the forward-control Q2 and Q4 tractors, designed for use with a 40-foot semi-trailer;



● **Top:** Front three-quarter view of the chassis-cab, this time fitted with a winch; note the tiny sidelights on the bumper ends and the winch fairlead rollers on the left-hand side.

● **Middle:** FV13225 was an end tipper, with rear bodywork by Edbro (B&E Tippers) of Bolton.

● **Bottom Left:** Fitted with a house-type container body, FV13206 was described as a 'recuperator repair' truck. Note the additional cooling aperture under the left-hand headlamp. *(PM Photography)*

● **Bottom Right:** Privately-owned FV13211 signals truck.

● White-painted Q4 belonging to the Army Personnel Research Establishment (APRE), a body formed in 1965 to carry out research into 'aspects of warfare as they apply to creating and maintaining an efficient fighting soldier'. *(PM Photography)*

the Q3 ambulance; and the 3-ton Q4. There were also small numbers of the 15cwt 'Beetle' cargo truck.

The company moved to larger premises at Dunstable in 1953. The Rootes Group was purchased, in stages, by Chrysler Europe from 1964, with Chrysler gaining complete control in 1973. The Commer name was dropped in 1976, and was replaced by 'Dodge'.

COMMER Q4, FV13200 SERIES

With its narrow cab emphasised by large wheel-arch extensions, additional air intakes on the bonnet sides, and what appeared to be huge wheels, the Commer Q4 looked like a standard Superpoise truck that had been on a course of steroids. A handsome beast, it was one of three types of 3-ton 4x4 GS truck included in the 'fifties programme, alongside the similarly-rated Ford and Bedford models, and it was certainly the one with the most presence!

The Q4 was based on a standard commercial vehicle, and there were almost 30 variants planned, including cargo, with removable sides; end-tipper; light recovery vehicle; and a large number of specialised repair and signals vehicles. Whether or not all of these were constructed remains unknown. The same chassis was also adopted by the Home Office for a number of civil defence vehicles, including the

● The twin warning lights on the cab roof identify this as a former Civil Defence vehicle to which has been added a house-type body. *(PM Photography)*

● FV13218 3-ton recovery vehicle. The standard Q4 rear wheels were replaced by twins to better support any towed load. The recovery equipment came from Mann Egerton of Norwich.

● Close-up of a peeling Q4 cab showing the wheel-arch extensions and additional cooling intakes that contribute to its rather 'butch' appearance.

so-called 'bikini' truck and a general-service cargo vehicle.

The engine was a standard Commer six-cylinder petrol unit, producing 95bhp (71kW) from a capacity of 4752cc (290 in³), and driving through a four-speed gearbox and two-speed transfer case. The suspension consisted of semi-elliptical springs all-round, with hydraulic shock absorbers. Although most variants were shod with 11-20in single tyres, the recovery vehicle (FV13218) had smaller 9.00-20in wheels, twinned at the rear, to support a suspended tow, although this body went on to be constructed in quantity on the Bedford RL 4x4 chassis (FV13115). Tipper and recovery variants were fitted with a 5-ton Turner underfloor winch.

There was a two-man cab, based on the standard Commer Superpoise offering, with the addition of wheel-arch extenders, additional ventilation in the nose of the bonnet and big square air intakes. Several thousand examples were constructed over a six-year period.

TECHNICAL SPECIFICATION

Production: 1952-56.
Number produced: 3700.

Automotive details

Engine: Commer; 4752cc (290in³); six cylinders; bore and stroke, 95x111mm; petrol; overhead valves; power output, 95bhp (71kW).
Transmission: 4F1Rx2; 4x4.
Suspension: live axles, front and rear on semi-elliptical springs, with hydraulic shock absorbers.
Brakes: hydraulic, with servo assistance.
Electrical system: 12V.

Dimensions: (FV13201 cargo variant)

Length, 275in (6985mm); width, 96in (2438mm); height, 121in (3073mm).
Wheelbase, 167in (4242mm).
Weight, unladen, 10,300 lb (4682kg); laden, 17,360 lb (7891kg).

Performance: maximum road speed, 33-35mph (53-56km/h); off-road, 12-15mph (20-24km/h).

Variants

FV13201	Truck, 3 ton, 4x4, GS, cargo
FV13202	Truck, 3 ton, 4x4, GS, automotive repair
FV13203	Truck, 3 ton, 4x4, GS, telecommunication repair
FV13204	Truck, 3 ton, 4x4, GS, stores, binned
FV13205	Truck, 3 ton, 4x4, GS, fuel injection repair
FV13206	Truck, 3 ton, 4x4, GS, recuperator repair
FV13207	Truck, 3 ton, 4x4, GS, electrical repair, Octopus/Crypton
FV13208	Truck, 3 ton, 4x4, GS, instrument repair
FV13209	Truck, 3 ton, 4x4, GS, radar repair
FV13210	Truck, 3 ton, 4x4, GS, armourer
FV13211	Truck, 3 ton, 4x4, GS, signals office
FV13212	Truck, 3 ton, 4x4, GS, cipher office
FV13213	Truck, 3 ton, 4x4, GS, wireless, R type
FV13214	Truck, 3 ton, 4x4, GS, signals office
FV13215	Truck, 3 ton, 4x4, GS, SDO
FV13216	Truck, 3 ton, 4x4, GS, equipment, testing predictor
FV13217	Truck, 3 ton, 4x4, GS, command
FV13218	Truck, 3 ton, 4x4, GS, light recovery, with winch
FV13219	Truck, 3 ton, 4x4, GS, tipper, end only, with winch
FV13220	Truck, 3 ton, 4x4, GS, signals office
FV13221	Truck, 3 ton, 4x4, GS, TEV
FV13222	Truck, 3 ton, 4x4, GS, general machinery
FV13223	Truck, 3 ton, 4x4, GS, signals office
FV13224	Truck, 3 ton, 4x4, GS, computing equipment
FV13225	Truck, 3 ton, 4x4, GS, tipper, end only, with winch, Mk 2
FV13226	Truck, 3 ton, 4x4, GS, teleprinter office
FV13227	Truck, 3 ton, 4x4, GS, mobile exchange, light

FORDSON

The 3-ton 4x4 'Commer-cabbed' Thames E Series

In 1911, the American Ford Motor Company established a factory at Trafford Park, Manchester for the assembly of Model T motorcars and light trucks. Some 20 years later the plant was moved to a Thames riverside site at Dagenham, where it remains to this day as an engine assembly plant. The first vehicle to be produced was a Model AA van, coming off the line in October 1931. The name Fordson was adopted by Ford of Britain for commercial vehicles and agricultural tractors in about 1929, with the word Thames appended to it in 1939.

● Worm's eye view of the chassis-cab of the FV13300 series. Note the massive ground clearance.

● Overhead view of the Fordson cab showing the roof hatch and anti-aircraft gun mount, suggesting that this chassis is destined to become an artillery tractor. The sign in the left-hand side of the windscreen reads 'WD vehicle'.

During WW2, Ford manufactured large numbers of military vehicles, including four- and six-wheeled trucks from 8cwt capacity to 3 tons, as well as fire crash tenders, ambulances, staff cars, utility vehicles, and tracked carriers; a new factory at Trafford Park constructed 34,000 Merlin aircraft engines. Total production during the years 1939-45 was said to be in the order of 360,000 vehicles.

Ford's only contribution to Britain's post-war re-armament was the Thames E2, E3 and E4 series, a 3-ton 4x4 truck that was manufactured in five variants, and the Ford Thames ET6 Sussex, a 6x4 conversion by County Commercial Cars Limited that was supplied to the RAF for use as a mount for various specialist house-type bodies.

The use of the name Fordson was discontinued in 1964.

FORDSON THAMES E2, E3, E4, FV13300 SERIES

The Fordson Thames E series was a strange beast. Although clearly a product of the Ford Motor Company, for some reason it was equipped with a cab that looked for all the world as though it had been manufactured by Commer. This should have been no surprise since the cab was actually produced by British Light Steel Pressings Limited of Acton, who were owned by the Rootes Group... and who also supplied Commer. Hence it was commonly described as 'the Commer-cabbed Ford'!

Work began in 1951, and the truck incorporated as many standard components as possible, including

● **Top Left:** Winch-equipped FV13303 tractor for the light anti-aircraft gun.

● **Top Right:** Standard Spurling (FV13302) or Mulliner (FV13305) four-stretcher ambulance.

● **Bottom Left:** Duple-bodied ambulance (FV13304), converted from the FV13301 stores truck and using the same insulated body, but partitioned into two compartments. The body could accommodate four stretcher cases together with six walking wounded, and one orderly.

● **Bottom Right:** FV13301 was fitted with a house-type body and was intended for use as a mobile stores vehicle.

a Ford side-valve V8 petrol engine, very similar to those turned out in their thousands during WW2. The engine was coupled to a four-speed gearbox and two-speed transfer case, and the suspension was thoroughly conventional, consisting of live axles and semi-elliptical springs. The cab roof included a canvas-covered hip ring above the passenger seat, either for use by an observer or to allow the mounting of an anti-aircraft gun, and there was standard military lighting and electrical equipment.

A total of 5000 examples were constructed at Ford's Langley plant in Berkshire during 1952 and 1953. There were five variants, consisting of three types of four-stretcher heated ambulance, a stores vehicle, and a light anti-aircraft tractor. The bodies were built by Spurling, Mulliner and Duple; the gun tractor had seating for nine men in the rear body, together with stowage facilities for ammunition and personal kit; a 5-ton Turner winch was installed under the floor. The FV13304 ambulance was converted from the FV13301 stores trucks and can be identified by having a slightly shorter body with larger windows.

TECHNICAL SPECIFICATION

Production: 1952-53.

Number produced: 5000.

Automotive details

Engine: Ford; 3920cc (239in³); eight cylinders in 'V' formation; bore and stroke, 81x95mm; petrol; side valves; power output, 87bhp (65kW).

Transmission: 4F1Rx2; 4x4.

Suspension: live axles on semi-elliptical springs, with hydraulic shock absorbers at all four wheels.

Brakes: hydraulic, with vacuum servo assistance.

Electrical system: 12V.

Dimensions: (FV13303 light anti-aircraft tractor variant)

Length, 253in (6426mm); width, 96in (2438mm); height, 131in (3302mm), reducible to 96in (2438mm).

Wheelbase, 150in (3810mm).

Weight, unladen, 11,452 lb (5205kg); laden, 19,488 lb (8858kg).

Performance: maximum road speed, 40mph (65km/h); off-road, 15mph (25km/h).

Variants

FV13301	Truck, 3 ton, 4x4, GS, container, stores, binned
FV13302	Truck, 3 ton, 4x4, GS, ambulance, Spurling body
FV13303	Tractor, 3 ton, 4x4, GS, light anti-aircraft, with winch
FV13304	Truck, 3 ton, 4x4, GS, ambulance, Duple body
FV13305	Truck, 3 ton, 4x4, GS, ambulance, Mulliner body

HUMBER

A 1-ton 4x4 combat-rated truck bristling with innovation

Founded by Thomas Humber in 1887 as a manufacturer of bicycles, motorcycles and motor vehicles, the latter aspects of the business began to dominate from about 1896 and the cycle trademarks were eventually sold to Raleigh. Motorcycle manufacture ended in the 'thirties. In 1925 Humber acquired Commer, thus moving into the production of commercial vehicles. The Rootes brothers acquired a controlling interest in the company in 1928, taking over Hillman a year later. From 1932, Hillman became a subsidiary of Humber, and the name was used for smaller cars. Karrier was acquired in 1934.

● Early prototypes or pre-production versions of the FV1600 series can be identified by their smaller headlamps.

During WW2, Humber produced staff cars, heavy utilities, ambulances, 8cwt trucks, and light armoured scout and reconnaissance cars, that, curiously, were products of the Karrier plant but which were apparently named Humber to avoid confusion with the tracked universal carriers. The company also produced just three examples of the experimental 6x6 skid-steered Hexonaut, a floating 15cwt truck.

In 1947, Humber was selected as the design parent, and later as the production facility, for the 1-ton CT-rated FV1600 series. Quite why the name Humber was chosen, rather than Commer or Karrier, both of which

● Although the series was originally rated at 15cwt, following WW2 practice, by the time production started, the weight classification had been raised to 1 ton. This is the FV1601 cargo vehicle.

● Like other CT-rated vehicles, the FV1600 was expected to be able to wade to a depth of 78in (1981mm) with minimal preparation beyond the addition of a snorkel. Note that both roof hatches have had their covers removed.

were commercial-vehicle producers under the same banner, remains something of a mystery.

By 1960, the Rootes Group had grown to become the twelfth largest motor company in the world, with an annual output of some 200,000 cars, vans and trucks, although there were to be no more military vehicles bearing the name Humber. But, within less than a decade, the company was in financial trouble, and in 1968, one year after the acquisition of the Rootes Group by the Chrysler Corporation, the use of the name Humber was abandoned. And, by 1976, all Hillmans were being badged as Chrysler.

HUMBER FV1600 SERIES

Despite being curiously bereft of a manufacturer's model name, the FV1600 series eventually proved itself to be a fine piece of work, as well as being more attractive than the average military vehicle had any right to be. The trouble was, once deliveries started, the Army realised

● **Left Top:** FV1601 cargo vehicle photographed doing its stuff at the FVRDE 1954 exhibition of British military vehicles.

● **Left Bottom:** Pre-production version of the FV1601 cargo vehicle wearing very strange rear tyres.

● **Top:** During the 'fifties, trials were conducted regarding the suitability of the FV1601 as an artillery tractor, towing both the 25 lb field gun and the ammunition limber. Unfortunately, the vehicle was not felt to be sufficiently powerful for the role.

● **Middle Left:** Very few of these Humber 1-ton trucks found civilian careers... which, in turn, means that few were subsequently available to collectors. This very nicely restored example demonstrates how the windscreen folds down onto the scuttle. *(Simon Thomson)*

● **Middle Right:** Converted from the basic cargo vehicle, FV1604 was equipped with a house-type signals body.

● **Bottom Left:** Also converted from basic cargo trucks, in very small numbers, FV1622 was described as a ' test truck' for the Malkara anti-tank missile.

● **Bottom Right:** Unloved and discarded on a pile of scrap... what a sad end for a valiant warrior. *(PM Photography)*

that it didn't really have a use for such a vehicle and large numbers were put straight into storage. By 1969, most had either been disposed of through the auction houses or converted to more specialised roles.

Work on the FV1600 series had started in 1947 with a brief drawn up by FVRDE that described a technologically-advanced Rolls-Royce engined 15cwt truck with independent suspension that would provide good off-road performance. Humber was contracted as the design parent and eventually went on to win the production contract as well.

Early examples were open-cabbed, but all production vehicles had a fully-enclosed twin-skin pressed-steel insulated cab with accommodation for a crew of two. The six-cylinder Rolls-Royce engine was coupled to a five-speed gearbox and two-speed transfer case, and there was independent torsion-bar suspension at all four wheels.

Production started in 1952, with all of the 3700 vehicles constructed being bodied as the basic FV1601 cargo variant, with longitudinal troop seats; all other variants were converted from this basic version. The first conversion (FV1602) was to the FFW/FFR communications role; externally, these vehicles differed only slightly from the base cargo truck but included seats, radio tables and battery boxes in the rear, as well as a two-speed generator. A purpose-designed radio truck followed (FV1604), fitted with a fully-enclosed house-type body manufactured by Marshall of Cambridge; there is no record of what happened to the original cargo bodies. Last up, in about 1960, was a pair of trucks (FV1621 and FV1622) designed to provide support and supply facilities for the Malkara missile launch system. By the time that the FV1621 missile supply and FV1622 missile test trucks were built, the CT classification had been dropped and these vehicles were classified as GS.

During the mid-fifties, some 1700 examples of the truck were stripped of their bodywork and fitted with armoured hulls, by either Joseph Sankey or the Royal Ordnance Factory at Woolwich. Various technical changes were made to enable the chassis to cope with the increased weight of the armoured body, with further changes required when the weight of the armour was increased in response to service conditions. Nicknamed 'Pigs', either on account of their ugly appearance or their even uglier driving characteristics, these trucks saw service in Malaya, Cyprus and Northern Ireland.

The Rootes Group also offered the FV1600 to civilians, equipped either with a 47500cc Commer engine or the military Rolls-Royce B60 unit. Some sources suggest that 30 or so examples were exported to the Middle East and Australia, but the price of the vehicle would have dissuaded all but the keenest customers.

TECHNICAL SPECIFICATION

Production: 1952-54.
Number produced: 3700.

Automotive details

Engine: Rolls-Royce B60 Mk 2A or Mk 5A; 4256cc (260in³); six cylinders; bore and stroke, 87x111mm; petrol; overhead inlet valves, side exhaust; power output, 130bhp (97kW).
Transmission: 5F1Rx2; 4x4.
Suspension: independent torsion-bar suspension, with hydraulic shock absorbers at all four wheels.
Brakes: hydraulic, with vacuum servo assistance.
Electrical system: 24V.

Dimensions: (FV1601 cargo variant)

Length, 199in (5054mm); width, 82in (2083mm); height, 93in (2362mm), reducible to 76in (1930mm).
Wheelbase, 108in (2743mm).
Weight, unladen, 8420 lb (3819kg); laden, 11,477 lb (5206kg).

Performance: maximum road speed, 55mph (90km/h); off-road, 25mph (40km/h).

Variants

FV1601A	Truck, 1 ton, 4x4, CT, cargo, with winch
FV1602A	Truck, 1 ton, 4x4, CT, cargo/FFW, with winch
FV1604A	Truck, 1 ton, 4x4, CT, wireless, light
FV1621	Truck, 1 ton, 4x4, GS, missile supply
FV1622	Truck, 1 ton, 4x4, GS, missile test

LAND ROVER

A low-cost utility vehicle that replaced both the Jeep and the Champ

Between the launch of the Series I in 1948 and its establishment as a separate commercial enterprise in 1978, Land Rover was nothing more than a marque of the Rover Company. Established as a maker of bicycles in 1878, the company introduced motorcycles in 1902, and motorcars in 1904. During WW1, alongside the Sunbeam Motor Car Company, Rover produced the lion's share of 1600 military heavy ambulances, as well as motorcycles, and 3-ton 4x2 'Subsidy A' trucks, the latter to a design produced by Maudslay.

● Dating from 1948, HUE 166, was the first of the pre-production Land Rovers, and is now kept at the British Motor Museum, Gaydon. *(DeFacto)*

The business did not go particularly well during the 'twenties and, in 1929, Spencer Wilks was brought over from the Hillman Motor Car Company and appointed as general manager. He was promoted to the board in 1929, and a year later, his brother Maurice, who had also worked for Hillman, was appointed as chief engineer. Between them the Wilks brothers, both of whom remained at the helm at Rover until the early 'sixties, resolved that Rover's future lay in producing high-quality, reliable motorcars.

Vehicle production halted during the war years, with Rover concentrating on improving the performance of Frank Whittle's jet engine.

After WW2, the company abandoned its original Helen Street site, which had been damaged by bombing in 1940, and bought two ex 'shadow factories'. The first, at Acocks Green, produced the military Meteor and Meteorite petrol engines, whilst the second, at Solihull, was opened in 1947 to produce motorcars... eventually becoming

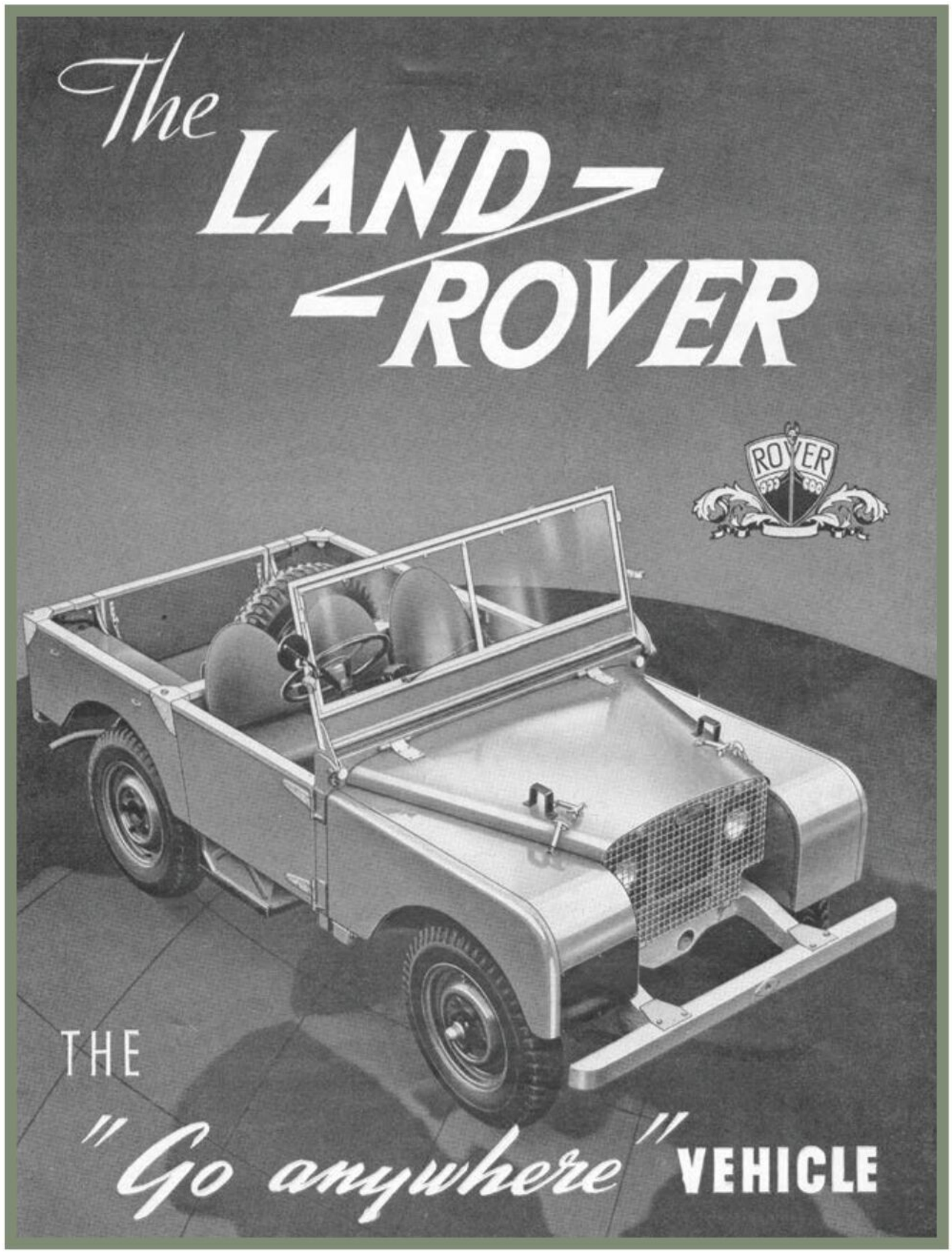
Top: Short-wheelbase Series I assigned to the Military Police. Note the add-on semaphore indicators on the windscreen frame.

Bottom Right: Rover sales leaflet for the civilian Series I, dated January 1951.

better known as the home of the Land Rover.

The Land Rover brought commercial success to the company, but there was little stability. Rover was sold to Leyland Motors in 1967. But British Leyland, as it had become in 1968, was in financial difficulties and nationalisation followed, with many of the assets of the former Rover Company transferred to Land Rover Limited. However, the Rover name was not abandoned and was eventually given to the entire conglomerate in the form of the Rover Group in 1986, ownership of which passed to British Aerospace in 1988 before being acquired by BMW in 1994. The Group was broken up by BMW in 2000 and the Land Rover name was sold to Ford in 2006, eventually passing to the Indian Tata Motors Group in 2008.

The name Land Rover is still owned by Tata, and the company operates as Jaguar Land Rover, based at the old Solihull factory. Currently, Land Rover concentrates on producing premium SUVs and appears to have no interest in the defence market.



● Long-wheelbase RAF Series I rescue ambulance (either FV18005 or FV18008) photographed during cold-weather trials in Canada.

LAND ROVER SERIES I, FV18000 SERIES

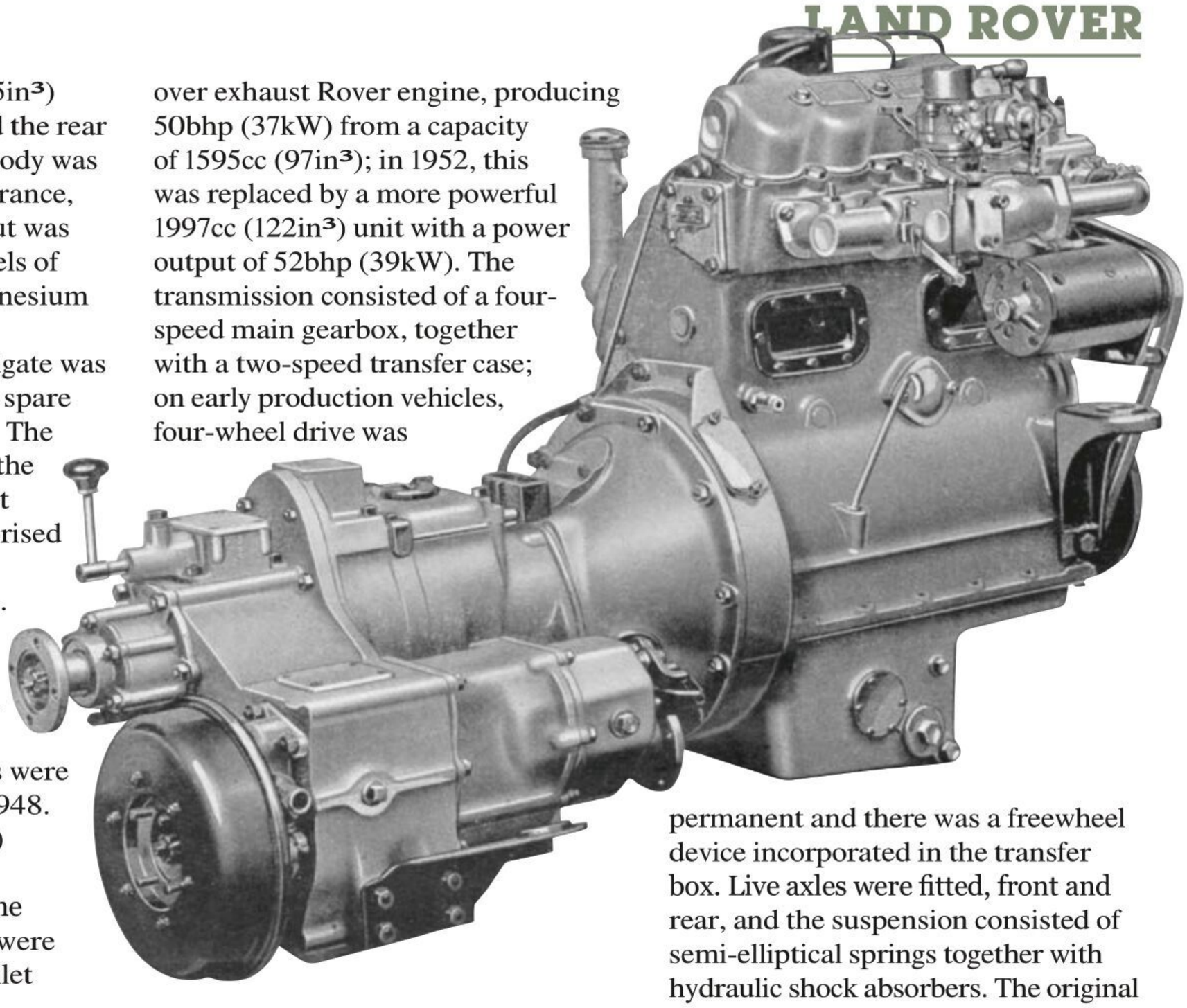
Legend has it that the Series I Land Rover arose out of Maurice Wilks' use of a war-surplus military Jeep around his farm in North Wales. At the time, the Rover Company was having difficulties in acquiring sufficient steel to get their motorcars back into production and, realising that if he found the Jeep useful around the farm so too would others, Wilks proposed that a utility vehicle similar to the Jeep might provide a useful stopgap. Work on designing the Land Rover started in the spring of 1947, using a pair of surplus Jeeps to speed up the prototyping procedure.

A centre-steer prototype was put together using parts of the two Jeeps, including the chassis and front axle, and parts of contemporary Rover

● Aside from items such as the rear bench seats and the wheel and tyre equipment, the military Series I differed little from the standard Land Rover that was sold to civilians. *(Simon Thomson)*

cars, including the 1389cc (85in³) engine from the Rover 10 and the rear axle from the Rover 12. The body was of decidedly utilitarian appearance, not unlike that of the Jeep, but was constructed largely from panels of Birmabright aluminium-magnesium alloy. There was a fold-down windscreen, and a folding tailgate was provided at the rear, with the spare wheel placed inside the body. The vehicle was demonstrated to the board of directors and, almost immediately, work was authorised to begin on producing a pre-production run of 50 vehicles. Although at this juncture it seems that no thought had been given to supplying Land Rovers to the military, two of these pre-production vehicles were delivered to FVRDE in mid-1948.

The original 1389cc (85in³) engine had proved to be insufficiently powerful, and the pre-production Land Rovers were powered by a four-cylinder inlet over exhaust Rover engine, producing 50bhp (37kW) from a capacity of 1595cc (97in³); in 1952, this was replaced by a more powerful 1997cc (122in³) unit with a power output of 52bhp (39kW). The transmission consisted of a four-speed main gearbox, together with a two-speed transfer case; on early production vehicles, four-wheel drive was permanent and there was a freewheel device incorporated in the transfer box. Live axles were fitted, front and rear, and the suspension consisted of semi-elliptical springs together with hydraulic shock absorbers. The original 80in (2032mm) wheelbase length was increased to 86in (2184mm) and then to 88in (2235mm). There were also long-wheelbase variants measuring up at 107in (2718mm) and 109in (2769mm).



Top: From 1948 until 1952, the standard engine of both the civilian and military Series I Land Rover was this 1595cc (97in³) four-cylinder unit, in combination with a four-speed gearbox and two-speed transfer case.

Bottom: The RAF purchased two batches of Series I Land Rovers in 1950, amounting to a total of 40 vehicles, together with another 150 the following year.

Crude and decidedly utilitarian, the bodywork was largely flat and followed the general pattern of the Jeep, albeit with simple doors rather than cut-away sides.

The Land Rover was launched to the public at the Amsterdam Motor Show in 1948 at a price of £450, rising to £540 in October of that year.

Although a pair of pre-production vehicles had already been acquired for evaluation, a further 20 vehicles were supplied to the Ministry of Supply later that year. With the FV1800 project nowhere near completion, it was believed that the Land Rover would both provide a simpler GS – although in fact it was originally

classified as CL – counterpart to the Champ once it was put into production, and in the meantime it would provide a useful stopgap. In their basic form, military Land Rovers differed little from their civilian counterpart.

As is so often the way, things did not work out like this and by 1956 the War Office was beginning to question the need for the sophisticated Champ at all... and with the Land Rover priced at something like half the cost of the Champ there was also a useful saving. The Champ production line closed down in 1956 and the Land Rover became the Army's standard $\frac{1}{4}$-ton tactical vehicle from 1958.

● With a tarpaulin over the radiator grille, and a high-level air intake for the engine, this Series I Land Rover was photographed wading ashore somewhere in the Far East.

TECHNICAL SPECIFICATION: FV18000 SERIES I

Production: 1948-58.
Number produced: 13,500 (out of a total production of 217,327).

Automotive details

Engine (1948-52): Rover; 1595cc (97in³); four cylinders; bore and stroke, 69x105mm; petrol; overhead inlet valves, side exhaust; power output, 50bhp (37kW).

Engine (from 1952): Rover; 1997cc (122in³); four cylinders; bore and stroke, 78x105mm; petrol; overhead inlet valves, side exhaust; power output, 52bhp (39kW).

Transmission: 4F1Rx2; 4x4; permanent four-wheel drive, with freewheel, to 1951.

Suspension: live axles on semi-elliptical springs, with hydraulic shock absorbers at all four wheels.

Brakes: hydraulic.

Electrical system: 12V.

Dimensions (FV18001 cargo variant)

Length, 132in (3353mm); width, 61in (1549mm); height, 71in (1791mm), reducible to 56in (1420mm).

Wheelbase, 80, 86 and 88in (2032, 2184, 2235mm).

Weight, unladen, 2600 lb (1182kg); laden, 4023 lb (1829kg).

Dimensions (FV18005 ambulance variant)

Length, 184in (4674mm); width, 75in (1905mm); height, 89in (2261mm).

Wheelbase, 107 and 109in (2718, 2769mm).

Weight, unladen, 3806 lb (1730kg); laden, 4862 lb (2210kg).

Performance: maximum road speed, 45mph (72km/h); off-road, 15mph (24km/h).

Variants

FV18001	Truck, $\frac{1}{4}$ ton, 4x4, GS, cargo
FV18003	Truck, 10cwt, 4x4, GS, airfield lighting maintenance
FV18004	Car, 4x4, GS, heavy utility, LWB
FV18005	Truck, $\frac{3}{4}$ ton, 4x4, GS, ambulance, special, LWB
FV18006	Truck, $\frac{1}{4}$ ton, 4x4, GS, SAS
FV18007	Truck, $\frac{1}{4}$ ton, 4x4, GS, cargo
FV18008	Truck, $\frac{3}{4}$ ton, 4x4, GS, ambulance, 4 stretcher
FV18009	Truck, $\frac{1}{4}$ ton, 4x4, GS, mobat towing

Top: Seemingly-new short-wheelbase Series I photographed in Hong Kong.

Middle Left: Sand-coloured Series I with the distinctive inverted T-shaped radiator guard that was adopted in 1951. *(Nigel Osborne)*

Middle Right: The long-wheelbase chassis was frequently used as a mount for the mountain rescue ambulance.

Bottom: Although cross-country performance was good, if a little uncomfortable, the Land Rover can get stuck in very soft going. *(Ferguson Museum)*

Middle Left: Although originally launched with an 80in (2032mm) wheelbase just like the WW2 Jeep, on later versions of the Series I the wheelbase grew to 86in (2184mm) and then 88in (2235mm).

Middle Right: As the price of surviving Series I Land Rovers has increased, so, it seems, does their desirability. This well-worn short wheelbase example, ripe for restoration, came up for auction at Cheffins in 2012.

Bottom Right: The Series II was introduced in 1958, remaining in production until 1961. The most obvious change was in the increased width of the bodywork, and the addition of sill covers, but, under the bonnet there was a new 2286cc (140in^3) overhead-valve engine. There was also a new civilian truck cab.

● A pair of short-wheelbase Series I Land Rovers photographed in Aden during the four-year insurgency that took place there in the early 'sixties.

● Short- and long-wheelbase military Series II cargo vehicles, showing the standardised military lighting equipment, double-height pusher bumpers, and split-rim wheels.

Less than 13,000 Champs had been produced... whereas for the British military Series I, the total production figure was 13,500 when production came to an end in 1958. Not bad for a stopgap!

Series I Land Rovers were deployed to the Korean War and to the Suez Crisis, and the vehicle proved itself to be immensely versatile. It was adapted to a large number of roles, with specialised vehicles produced either as factory variants or as workshop modifications.

LAND ROVER SERIES II, FV18000 SERIES

In April 1958, the original Series I Land Rover was replaced by the improved, and slightly wider, Series II which was styled by Rover's David Bache. The new vehicle could be easily identified by the 1½-in (38mm) barrel curve at the waist rail, designed to accommodate the increased girth, and by virtue of the fact that there were now sills fitted between the wheel arches.

The 88 and 109in (2235, 2769mm) wheelbases were retained, but under the bonnet, the Series II was fitted with a new overhead-valve 2286cc (140in³) four-cylinder engine, producing 77bhp (57kW); there was also an optional 2052cc (125in³) diesel engine available from 1957,

Top: Left-hand drive long-wheelbase Series II mounting a WOMBAT anti-tank gun.

Middle: The long-wheelbase Series II ambulance was very similar in design to the Series I equivalent.

Bottom: Long-wheelbase Series II, complete with anti-tank gun, wrapped up ready for wading trials. Note the extended air intake and exhaust pipes and the recovery cable... the latter, always ready should things not go according to plan.

but no diesels are believed to have been supplied to the Army until the early 'sixties.

The track was increased when compared to the Series I, which made the vehicle more stable and gave it a better turning circle, and the improved compliance of the springs, coupled with new shock absorbers, ensured a softer ride. Two different engine compartment covers were used: all of the long-wheelbase models and the 88in (2235mm) station wagons had a new cover with a neatly rounded front lip, whilst everything else retained a version of the original cover with a 'sharp' front end.

Again, the military models were little changed from those vehicles sold to civilians, but there were a number of specialised military variants

● Although the total number of Series II Land Rovers supplied to the military was relatively small – around 1000 out of a total production of more than 63,519 – the civilian market couldn't get enough of them.

and some examples were lightly militarised, for example, with longer spring hangers, military-pattern lighting equipment, an oil cooler, and double-height 'pusher' bumpers. In 1958, a total of 275 examples of the FV18021 cargo vehicle were supplied with rear wheel drive only.

The Series II was replaced by the IIA in September 1961, by which time total production had passed 63,000, from which the British Army is believed to have taken fewer than 1000 examples.

TECHNICAL SPECIFICATION: FV18000 SERIES II

Production: 1958-61.

Number produced: around 1000 (out of a total production of more than 63,519).

Automotive details

Engine: Rover; 2286cc (140in³); four cylinders; bore and stroke, 90x89mm; petrol; overhead valves; power output, 77bhp (57kW).

Transmission: 4F1Rx2; 4x4.

Suspension: live axles on semi-elliptical springs, with hydraulic shock absorbers at all four wheels.

Brakes: hydraulic.

Electrical system: 12V.

Dimensions (FV18021 cargo variant)

Length, 142in (3610mm); width, 64in (1626mm); height, 78in (1981mm), reducible to 56in (1420mm).

Wheelbase, 88in (2235mm).

Weight, unladen, 2900 lb (1318kg); laden, 4435 lb (2020kg).

Dimensions (FV18044 ambulance variant)

Length, 190in (4830mm); width, 75in (1905mm); height, 84in (2150mm).

Wheelbase, 109in (2769mm).

Weight, unladen, 4144 lb (1883kg); laden, 5600 lb (2545kg).

Performance: maximum road speed, 45mph (72km/h); off-road, 15mph (24km/h).

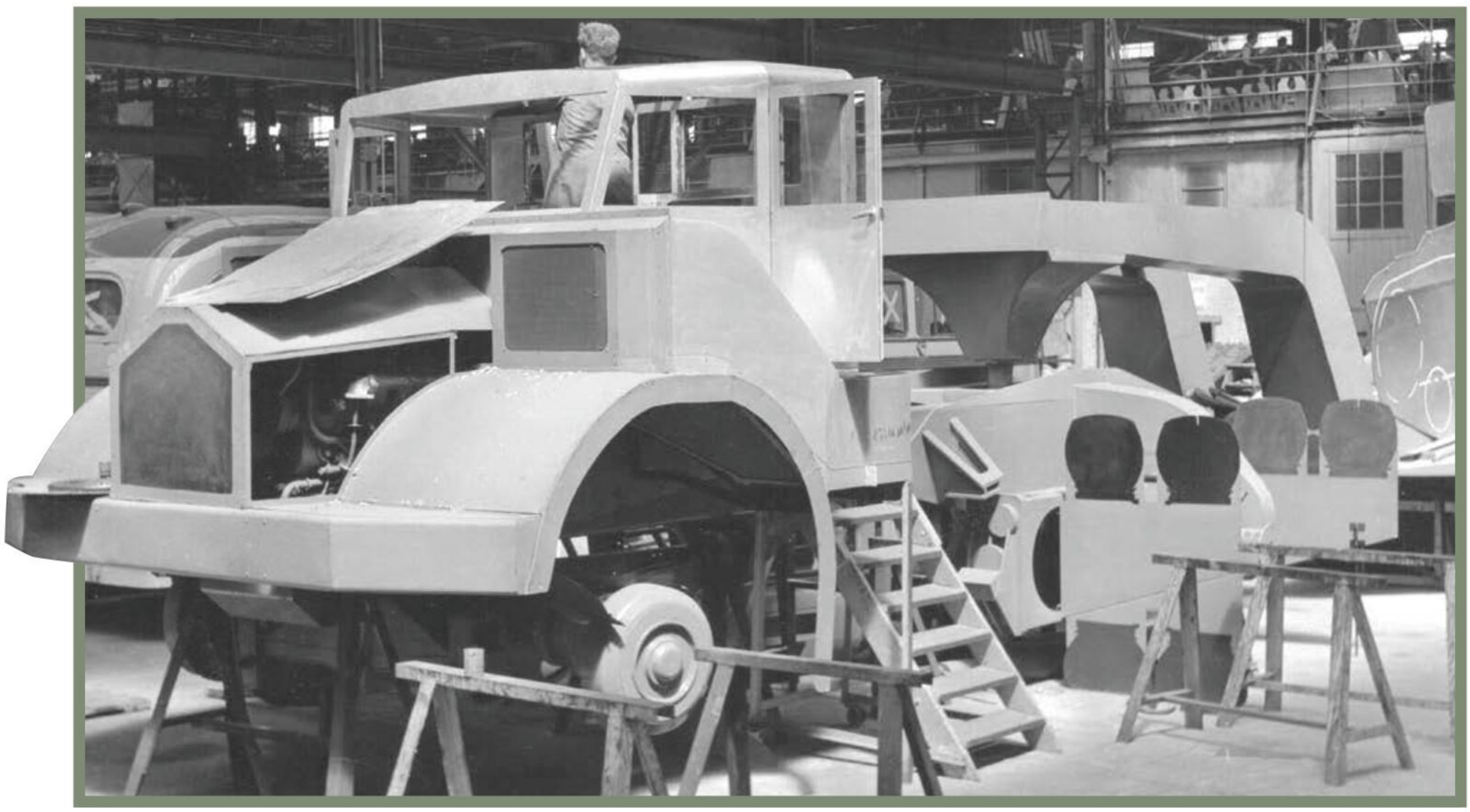
Variants

FV18021	Truck, ¼ ton, 4x4, GS, cargo
FV18022	Truck, ¼ ton, 4x4, GS, airfield lighting maintenance
FV18023	Truck, ¼ ton, 4x4, GS, helicopter starting
FV18041	Truck, ¾ ton, 4x4, GS, cargo
FV18042	Car, 4x4, GS, utility, heavy, LWB
FV18043	Truck, ¾ ton, 4x4, GS, ambulance, 2-stretcher, mountain rescue
FV18044	Truck, ¾ ton, 4x4, GS, ambulance, 2-stretcher
FV18045	Truck, ¾ ton, 4x4, GS, Wombat
FV18046	Truck, ¾ ton, 4x4, GS, sensitivity test, SAGW number 2
FV18047	Truck, ¾ ton, 4x4, GS, fire-fighting, airfield crash rescue
FV18048	Truck, ¾ton, 4x4, GS, computer
FV18049	Truck, ¾ ton, 4x4, GS, computer, SSGW number 1
FV18050	Truck, ¾ ton, 4x4, GS, fuse test equipment, SSGW number 1
FV18051	Truck, ¾ ton, 4x4, GS, mine detector
FV18054	Truck, ¾ ton, 4x4, GS, ambulance, 2/4-stretcher
FV18055	Truck, ¾ ton, 4x4, GS, ambulance, 2-stretcher, mountain rescue

LEYLAND MOTORS

6x6 Hippos and Martians... plus a couple of heavyweights that didn't make it

Founded in Leyland, Lancashire as the Lancashire Steam Motor Company back in 1896, the company grew to become one of the world's largest commercial-vehicle manufacturers, swallowing up almost all of its competitors and even venturing into the car-making business... and then suffered a spectacular fall from grace in 1975.



● Plywood mock-up for the FV1000 super heavy tractor, together with its 60-ton tank-transporter semi-trailer.

In 1907, the name was changed to Leyland Motors and, at this time, the company's model range included both steam- and petrol-powered machines. Although a number of steam wagons were supplied to the British Army during the immediate pre-war years, military production could be said to have started in 1907, with the X3, a $3\frac{1}{2}$-ton 4x2 cargo truck. During WW1, the name Leyland became known for the so-called 'RAF type' 3-ton truck, a solid-tyred 'Subsidy A' vehicle of which nearly 6000 examples were produced.

The inter-war period saw Leyland supply examples of the bonneted Terrier, a 3-ton 6x4 'Subsidy' truck that was bodied as a cargo vehicle. In 1937 a further batch of Terriers was purchased, this time in forward-control configuration and bodied for the cargo/prime mover role.

Leyland's major contribution to WW2 were the Cromwell and Comet tanks, as well as a range of militarised medium to heavy vehicles, including examples of the forward-control 3-ton Retriever, 6-ton Badger and 10-ton Hippo trucks, with the Hippo remaining in production into the post-war years.

Post-war, Leyland developed the CT rated 10-ton Martian, which was bodied as an artillery tractor, recovery vehicle, and cargo vehicle, and the company was also responsible for the still-born FV1200 and FV1000 projects. Small numbers of commercial trucks were also supplied during this period, including the 5-ton Beaver, the 10-ton Bison, and the Laird, which was a prototype for a $4\frac{1}{2}$-5 ton cargo vehicle.

In 1951 Leyland acquired Albion Motors. This started a long period of acquisition which saw Leyland swallow up Scammell in 1955, and the ACV

● FV1000 in the flesh... you might say that some of the symmetry of the mock-up has been lost.

● FV1800 Wolseley Mudlark being used to demonstrate the enormous size of the FV1000 tractor.

● The FV1000 tractor finished its working life at the FVRDE Chertsey site, where it was used as a test rig for gradient simulation, before being shipped away to be scrapped.

● Leyland Martian (FV1103) artillery tractor, with twin snorkels, climbing out of the FVRDE wading pit at the 1956 exhibition of British military vehicles.

● Chassis for the FV1100 series showing the degree of axle articulation available from the decidedly Scammell-like front and rear suspension.

● Although other variants were planned, the Martian was constructed for just five roles. This is the FV1103 medium artillery tractor.

Group, consisting of AEC, Maudslay, Crossley and Thornycroft, in 1962. Bristol, Alvis and Aveling Barford were acquired in 1965-66, and in 1968, the company merged with British Motor Holdings, bringing Austin, Morris, Guy, Jaguar and Daimler into the fold. Despite a new name – British Leyland Motor Corporation – it was all too much for Leyland and, by 1975 the end game had begun with part-nationalisation. In various forms the company staggered on before finally going into administration in 2005.

LEYLAND 'BRONTOSAURUS', FV1000 SERIES

Nicknamed 'Brontosaurus' for obvious reasons, FVRDE boasted that the 60-ton FV1000 series was the largest truck produced in the world to that date. The top of the cab

towered 135in (3430mm) above the road, and the beast had an overall width of 161in (4090mm)... some 50in (1270mm) more than an Antar! Five variants were planned... but just one vehicle was built before common sense prevailed. In 1955, the project was cancelled and the vehicle was ultimately converted into a dynamometer to test the gradient-climbing abilities of tanks. It spent almost all of its life at the FVRDE site at Chertsey, and was finally scrapped in the 'seventies.

Work on this monster started in 1947, with deliveries planned for the following year, but it wasn't until 1951 that the first prototype appeared. A special semi-trailer, designated FV3301, was designed to allow a Conqueror tank to be carried... but, when fully laden, the tractor and semi-trailer combination would have breached the then-current maximum 100-ton limit on military bridges.

Power came from a fuel-injected Rover Meteorite V8 petrol engine, displacing 18,012cc (1099in³) and producing 498bhp (371kW). The transmission consisted of a five-speed main gearbox, combined with a three-speed transfer case; the final drive at the front axle was made through the kingpins in the style of WW2 Mack trucks. The front axle was suspended on a single transverse semi-elliptical spring designed to pivot at its centre point, and there were walking beams at the rear, without springs.

TECHNICAL SPECIFICATION: FV1000

Production: 1951.

Number produced: one, prototype only.

Automotive details

Engine: Rover Meteorite Mk 202A; 18,012cc (1099in³); eight cylinders in 'V' formation; bore and stroke, 137x152mm; mechanical petrol injection; overhead valves; power output, 498bhp (371kW).

Transmission: 5F1Rx3; 6x6.

Suspension: live axle at front on centrally pivoted semi-elliptical spring; unsprung walking beams at rear.

Brakes: servo-assisted air brakes.

Electrical system: 24V.

Dimensions: (FV1003 tractor for semi-trailer)

Length, 342in (8690mm); width, 161in (4090mm); height, 135in (3430mm).

Wheelbase, 204in (5190mm).

Bogie centres, 83in (2100mm).

Weight, unladen, 85,904 lb (39,047kg); laden, 149,296 (67,861kg).

Performance: maximum road speed, unladen, 35mph (56km/h); laden, 20mph (33km/h); off-road, 15mph (25km/h).

Variants

The following variants were planned, but only one vehicle was produced:

FV1001	Tractor, 60 ton, 6x6, CT, ballast body, for full trailer
FV1002	Tractor, 60 ton, 6x6, CT, medium/heavy artillery
FV1003	Tractor, 60 ton, 6x6, CT, for semi-trailer
FV1004	Tractor, 60 ton, 6x6, CT, recovery, super heavy
FV1005	Truck, 60 ton, 6x6, CT, crane vehicle

A 20-ton winch was installed in such a way as to allow either front or rear pulls.

The bodywork was hardly a thing of beauty, but what it lacked in aesthetics, it more than made up for

● FV1000 and FV1200 prototypes posed together... you wouldn't want to encounter either of these beasts on a narrow lane!

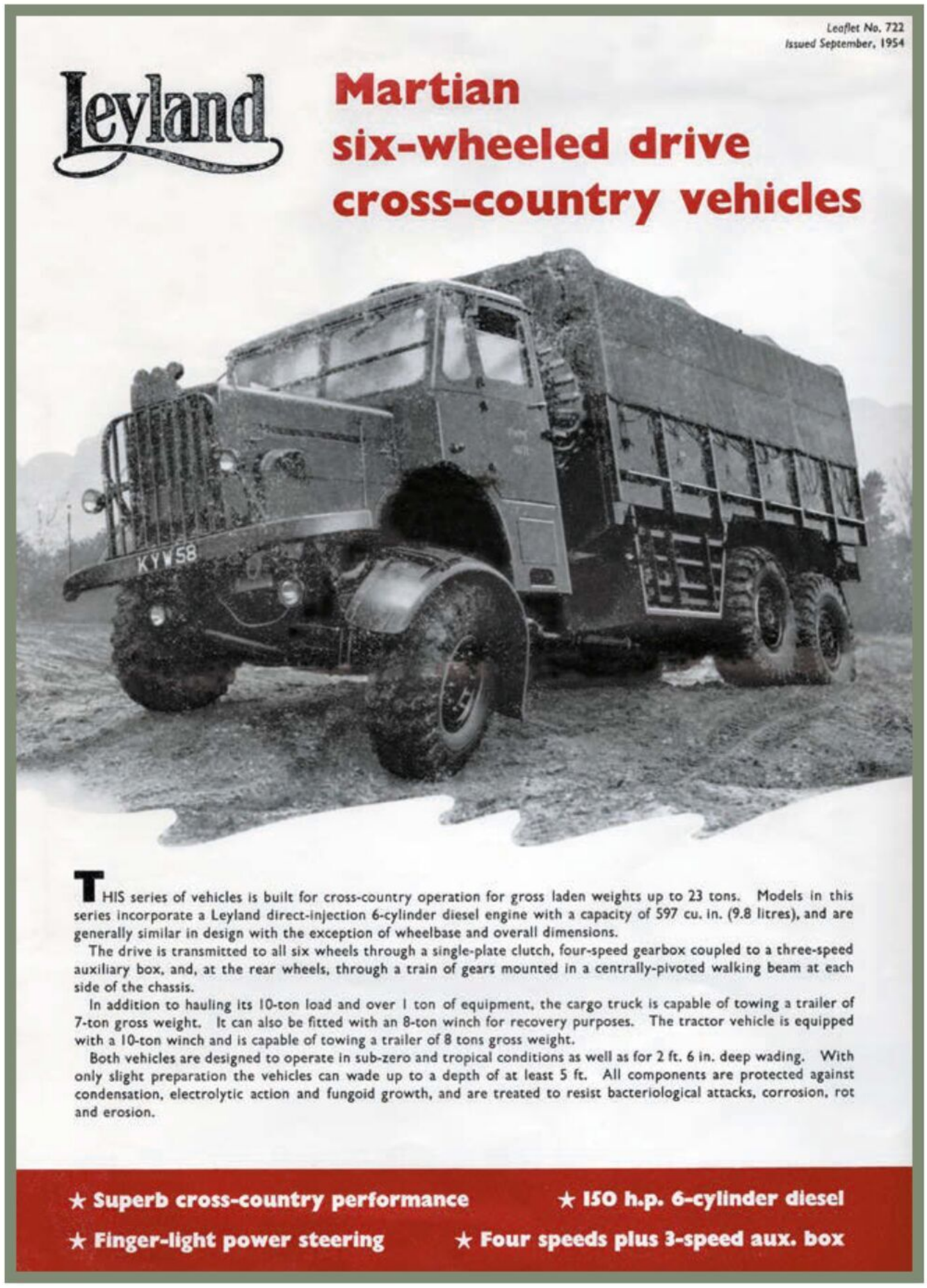
● FV1119 was a heavy recovery tractor, fitted with a 15-ton hydraulic crane and a 20-ton winch.

in sheer brutal presence. At the front there were massive twin radiators, and two large cooling grilles, one each side of the cab. Elements of the three-man cab looked like they had been borrowed from the FV1100 Leyland Martian range, but the marriage between the engine compartment and the cab left much to be desired... maybe it was all temporary and would have been resolved in a more satisfactory way had the project not been cancelled.

And what of the problems associated with moving the Conqueror that had apparently given rise to the need for this monster... oh yes, apparently the Thornycroft Antar, together with the FV3601 50-ton drawbar trailer, was more than capable of getting that particular job done!

LEYLAND MARTIAN, FV1100 SERIES

Whilst the Austin Champ and the Humber 1-ton were examples of CT-rated trucks that proved to be superfluous to requirements, the 10-ton Leyland Martian is a rare example of a CT truck that was actually welcomed into service even if, at first, it was deemed unreliable. Production began in 1954, but within a year all of the vehicles that had been delivered were 'frozen' in Ministry of Supply depots with design defects sufficiently serious to hold back their issue... eventually the defects were dealt with and the Martian proved to be remarkably reliable.



Leaflet No. 722
Issued September, 1954

Leyland

Martian six-wheeled drive cross-country vehicles

THIS series of vehicles is built for cross-country operation for gross laden weights up to 23 tons. Models in this series incorporate a Leyland direct-injection 6-cylinder diesel engine with a capacity of 597 cu. in. (9.8 litres), and are generally similar in design with the exception of wheelbase and overall dimensions.

The drive is transmitted to all six wheels through a single-plate clutch, four-speed gearbox coupled to a three-speed auxiliary box, and, at the rear wheels, through a train of gears mounted in a centrally-pivoted walking beam at each side of the chassis.

In addition to hauling its 10-ton load and over 1 ton of equipment, the cargo truck is capable of towing a trailer of 7-ton gross weight. It can also be fitted with an 8-ton winch for recovery purposes. The tractor vehicle is equipped with a 10-ton winch and is capable of towing a trailer of 8 tons gross weight.

Both vehicles are designed to operate in sub-zero and tropical conditions as well as for 2 ft. 6 in. deep wading. With only slight preparation the vehicles can wade up to a depth of at least 5 ft. All components are protected against condensation, electrolytic action and fungoid growth, and are treated to resist bacteriological attacks, corrosion, rot and erosion.

★ Superb cross-country performance ★ 150 h.p. 6-cylinder diesel
★ Finger-light power steering ★ Four speeds plus 3-speed aux. box

● A sales leaflet for the Martian was produced by Leyland in 1954. In civilian guise, the truck was fitted with the well-proven Leyland O.600 diesel engine. Two wheelbase lengths were available... 298in (7575mm) and 334in (8481mm).

● FV1103 artillery tractor coupled to a 5.5in howitzer. Introduced in 1941, the 5.5in gun remained in service until June 1980. *(PM Photography)*

● FV1201 heavy artillery tractor, photographed at FVRDE's 1954 exhibition... note the step ladder to ease entry to the cab which is some six feet (1801mm) from the road surface.

- **Top:** FV1201 tractor on a Number 6 tank bridge, normally deployed by a Centurion bridge layer.
- **Bottom:** Just two examples of the FV1201 were constructed... this is the 'other' one.

Although the first into production was the FV1103 artillery tractor, the first variant to be prototyped was the FV1110 cargo vehicle, with a single example supplied to FVRDE for trials in 1951. This differed from subsequent production in two major respects... firstly, there were simple cycle wings in place of the big, boxy front mudguards, and secondly, in common with the first 25 production machines, the power unit was a Rolls-Royce B80, rather than the more powerful B81.

The engine was coupled to a four-speed main gearbox, with a three-speed auxiliary box and transfer case. The front suspension was decidedly Scammell-like, with the centrally-pivoted axle mounted on a single transverse semi-elliptical spring. And, at the rear, there were walking beams suspended on a pair of semi-elliptical springs. Final drive to the front axle was achieved by using bevel gears and rotating kingpins in the style of WW2 Mack trucks. Cross-country performance was said to be 'excellent'.

Five variants were produced, with a choice of 174in (4420mm) and 213mm (5410mm) wheelbase lengths; the longer wheelbase was used only for the FV1110 cargo

variant. The artillery tractor was fitted with a four-door crew cab providing accommodation for 12 men, whilst other variants used a two-door three-seat version of the same cab. The cab could be split at the waistline to reduce the shipping height. The rear body of the artillery tractor, which was of timber and steel composite construction, with a removable canvas cover, provided space for equipment and ammunition, whilst the cargo vehicle was fitted with a steel drop-side body. Recovery variants carried a hydraulic power-operated crane produced by Leyland and Royal Ordnance Factories, together with a Turner winch.

In service, the recovery variants had the longest careers, with some examples surviving until 1985.

In 1954, Leyland offered two versions of the Martian to commercial customers, mostly for export. Equipped with the popular and well-proven Leyland O.600 diesel engine in place of the somewhat thirstier Rolls-Royce petrol unit, the truck was available with 298in (7575mm) and 334in (8481mm) wheelbase lengths... but the price must have deterred most would-be buyers.

LEYLAND FV1200 SERIES

Work on the FV1200 30-ton tractor actually started at the Dennis Brothers plant in leafy Guildford in 1949/50, but was moved to Leyland in 1953, with two of six planned prototypes submitted for testing a year later. In 1955, the contract was amended to cover just one FV1201 and one FV1205 vehicle before eventually being abandoned as

TECHNICAL SPECIFICATION: FV1100

Production: 1954-65.

Number produced: 1380.

Automotive details
Engine (first 25 examples constructed): Rolls-Royce B80; 5675cc (346in³); eight cylinders; bore and stroke, 89x114mm; petrol; overhead inlet valves, side exhaust; power output, 165bhp (123kW).
Engine (remainder of production): Rolls-Royce B81; 6516cc (398in³); eight cylinders; bore and stroke, 95x114mm; petrol; overhead inlet valves, side exhaust; power output, 220bhp (164kW).
Transmission: 4F1Rx3; 6x6.
Suspension: live axle at front on centrally pivoted semi-elliptical spring; walking beams at the rear, with semi-elliptical springs.
Brakes: air brakes; fitted for electric trailer brakes.
Electrical system: 24V.

Dimensions: (FV1103 artillery tractor)
Length, 322in (8179mm); width, 102in (2591mm); height, 121in (3073mm).
Wheelbase, 174in (4420mm).
Bogie centres, 55in (1397mm).
Weight, unladen, 31,556 lb (14,344kg); laden, 41,012 lb (18,642kg).

Dimensions: (FV1113 cargo vehicle)
Length, 357in (9068mm); width, 102in (2591mm); height, 142in (3607mm).
Wheelbase, 213in (5410mm).
Bogie centres, 55in (1397mm).
Weight, unladen, 29,600 lb (13,440kg); laden, 52,000 lb (23,610kg).

Performance: maximum road speed, laden, 35mph (57km/h); off-road, 15mph (25km/h).

Variants	
FV1103	Tractor, 10 ton, 6x6, CT, medium/heavy artillery
FV1110	Truck, 10 ton, 6x6, CT, cargo, drop-side, 18ft
FV1119	Tractor, 10 ton, 6x6, CT, recovery, heavy
FV1121	Truck, 10 ton, 6x6, CT, cargo, drop-side, 16ft
FV1122	Tractor, 10 ton, 6x6, CT, for 8in howitzer

Other variants were planned, but never constructed.

● The FV1200 project was abandoned in 1950 and both prototypes ended up at Hardwick's yard in Ewell where they were eventually broken for scrap.

● FV1201 posed alongside the Thornycroft Antar, which is by no means a small machine!

- **Top Left:** Chassis-cab for the Leyland Hippo FV11202 aircraft pressure refueller.
- **Top Right:** FV11213 was properly described as 'Leyland Hippo 19H/1E, truck, fuel, servicing, aircraft, 10 ton, 6x4, 2500 gallons, 300 gpm, Avtur/Avtag, pressure/open line refueller, Mk 1, Mk 2'. Whew!
- **Bottom Left:** Leyland Hippo chassis (FV11204) equipped with a steel tipper body.
- **Bottom Right:** FV11203, Hippo fifth-wheel tractor for semi-trailer photographed whilst on trial at FVRDE.

being too costly and too complex. The prototype vehicles cost the Ministry of Supply £20,000 to £22,000 each, representing some £560,000 to £620,000 in today's (2021) money… plus a sum of £250,000, equivalent to £7 million at current values, for tooling.

Like the FV1000, both of the prototypes, which were of the FV1201 artillery tractor variant, were powered by a Rover Meteorite 80 engine, producing 510bhp (380kW) from a capacity of 18,012cc (1099in³) and driving through a five-speed main gearbox and three-speed auxiliary box. The suspension consisted of a live axle at the front, carried on a centrally pivoted semi-elliptical spring, with unsprung walking beams carrying the rear bogie.

The twin-skin insulated cab was a widened and modified, three-door version of that used on the FV1100 Martian series, with huge rounded mudguards and a wide grille designed to allow cooling air to pass through a pair of radiators. At the rear, was a composite steel and timber body providing accommodation for 12 men, with space to stow equipment and ammunition. A hinged tailgate, and a pair of small steel ladders allowed access to the body at the rear. A huge spade anchor was mounted at the front, beneath the bumper, and there was a 15/20-ton winch between the chassis rails. A spare wheel was mounted high on the left-hand side.

By the standards of the day, these were massive, slow-moving machines, and were almost three feet wider than the legally permitted maximum for normal road traffic. Although the steering was power-assisted, driving the FV1200 on the typical narrow streets of the period must have been something of a nightmare. Nevertheless, testing continued during the mid- to late-fifties, and, when the project was eventually cancelled in 1960, the two prototypes ended up in Hardwick's yard at Ewell where they were broken-up.

Despite the cancellation of the FV1200 project, no direct replacement was considered. The Antar took over the tank-transporting role, although it lacked any significant off-road performance, and the Martian was assigned to the recovery and artillery-tractor roles.

TECHNICAL SPECIFICATION: FV1200

Production: 1953.
Number produced: two, prototypes only.

Automotive details
Engine: Rover Meteorite 80; 18,012cc (1099in³); eight cylinders in 'V' formation; bore and stroke, 137x152mm; mechanical petrol injection; overhead valves; power output, 510bhp (380kW).
Transmission: 5F1Rx3; 6x6.
Suspension: live axle at front on centrally pivoted semi-elliptical spring; unsprung walking beams at rear.
Brakes: servo-assisted air brakes.
Electrical system: 24V.

Dimensions: (FV1201 artillery tractor)
Length, 330in (8390mm); width, 122in (3100mm); height, 132in (3350mm).
Wheelbase, 180in (4580mm).
Bogie centres, 75in (1900mm).
Weight, unladen, 54,880 lb (24,945kg); laden, 74,000 lb (33,636kg).

Performance: maximum road speed, laden, 20mph (72km/h); off-road, 10mph (16km/h).

Variants
The following variants were planned, but only two vehicles were produced:

FV1201	Tractor, 30 ton, 6x6, CT, medium/heavy artillery
FV1202	Tractor, 30 ton, 6x6, CT, for semi-trailer
FV1204	Tractor, 30 ton, 6x6, CT, for semi-trailer
FV1205	Tractor, 30 ton, 6x6, CT, super heavy recovery
FV1206	Tractor, 30 ton, 6x6, CT, cross country, for semi-trailer
FV1206	Tractor, 30 ton, 6x6, CT, road-going, for semi-trailer

● This pair of former aircraft refuellers have found second careers with London Brick Landfill Limited, a company formed to dispose of household and industrial refuse by tipping it into worked-out clay pits in the Marston Vale area. *(PM Photography)*

● FV11211 was fitted with a house-type signals body.

LEYLAND HIPPO, FV11200 SERIES

The post-war Hippo should actually be described as the Hippo Mk 3 or Mk 4, with the Mk 1 and 2 vehicles dating back the WW2 period, but like the earlier Hippos, these were lightly-militarised trucks based largely on commercial components. However, unlike the WW2 Hippos which were designed to operate on the supply routes across northern France, those of the post-war era were mainly for the RAF, being bodied, for example, as signals or cargo vehicles, or as aircraft-refuelling tankers.

All of the Mk 3 and Mk 4 Hippos, of which there were in excess of 20 variants, were powered by the Leyland O.600 six-cylinder diesel engine, producing 133bhp (99kW) from a capacity of 9800cc (598in³) and driving the rear wheels through a five-speed main gearbox and a two-speed auxiliary gearbox. Suspension was by leaf-springs, inverted at the rear, and there were two wheelbase lengths produced.

Early examples were fitted with a cab that was similar to that which had been used during the wartime years, albeit without the exposed radiator, but later production, and especially of the Mk 4, shared a two-man forward-control cab with the standard civilian models of the period, albeit the military cab was split at the waistline to give a lower shipping height. The front mudguards were widened to suit the broader track, and there was a larger front bumper and a protective brush guard. On the radar vehicles

● FV11202 pressure refueller... there were at least three different types of aircraft refueller mounted on the Leyland Hippo chassis, carrying either 1200 or 2500 gallons (5500 or 11,350 litres) of fuel. *(PM Photography)*

● The FV11203 tractor was intended to be used with any of the 10-ton semi-trailers of the FV2700 series.

the cab was hinged at the waistline to permit rotation of the antenna.

The tipper body, which could be fitted with a scow end, was produced by Edbro, whilst the signals bodies, designed for the radar role or for some 20 different 'radio vehicle type' (RVT) configurations, were produced by Mickleover Transport. Refuelling trucks were fitted with Thompson tank equipment, and Zwicky pumps.

TECHNICAL SPECIFICATION: FV11200

Production: 1952-59.

Number produced: not known.

Automotive details

Engine: Leyland O.600; 9800cc (598in³); six cylinders; bore and stroke, 122x140mm; diesel; overhead valves; power output, 133bhp (99kW).

Transmission: 5F1Rx2; 6x4.

Suspension: live axles on semi-elliptical springs.

Brakes: air brakes or servo-assisted hydraulic, according to variant; vacuum or air lines available for trailer brakes.

Electrical system: hybrid 12V/24V.

Dimensions: (FV11202 aircraft pressure refueller variant)

Length, 333in (8458mm); width, 102in (2591mm); height, 131in (3327mm).

Wheelbase, 186in (2235mm).

Bogie centres, 55in (1397mm).

Weight, unladen, 29,400 lb (13,364kg); laden, 49,500 lb (22,500kg).

Dimensions: (FV1203 tractor variant)

Length, 262in (6655mm); width, 98in (2489mm); height, 111in (2819mm).

Wheelbase, 162in (4115mm).

Bogie centres, 55in (1397mm).

Weight, unladen, 20,000 lb (9091kg).

Performance: maximum road speed, unladen, 27mph (44km/h); off-road, 12mph (19km/h).

Variants

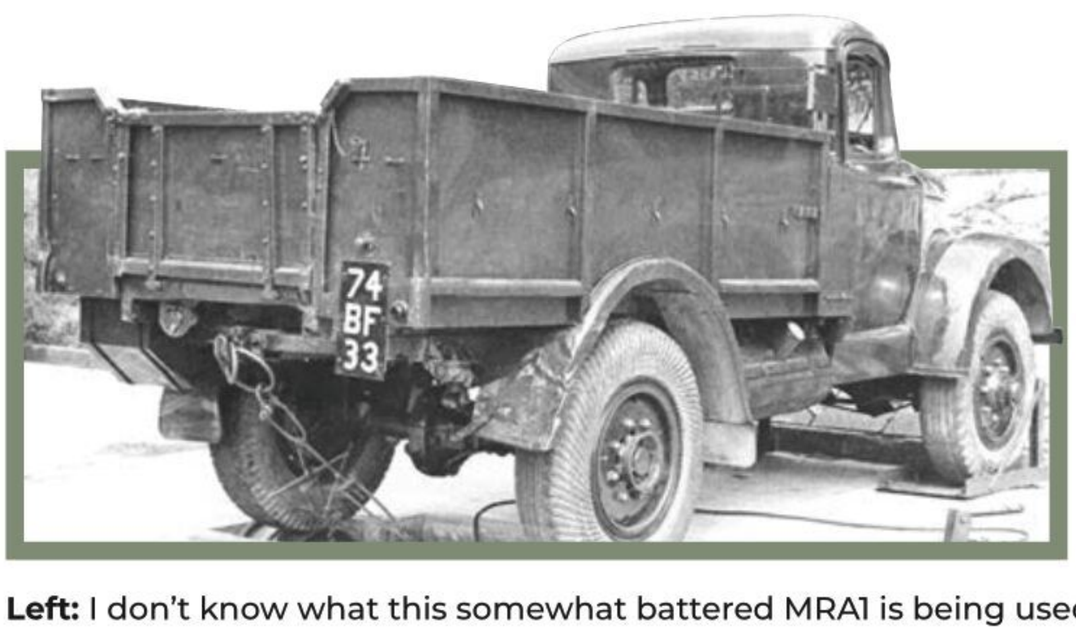
FV11201	Truck, 10 ton, 6x4, GS, fuel tanker, 2500 gal
FV11202	Truck, 10 ton, 6x4, GS, aircraft pressure refueller, 2500 gal
FV11203	Tractor, 10 ton, 6x4, GS, for semi-trailer, with winch
FV11204	Truck, 10 ton, 6x4, GS, tipper, end only
FV11205	Truck, 10 ton, 6x4, GS, cargo, 19ft 6in
FV11207	Truck, 10 ton, 6x4, GS, radar head antenna
FV11208	Truck, 10 ton, 6x4, GS, operations cabin
FV11209	Truck, 10 ton, 6x4, GS, recovery
FV11210	Truck, 10 ton, 6x4, GS, radar, type 2 Mk 7
FV11211	Truck, 10 ton, 6x4, GS, Q type signals body Mk 1
FV11212	Truck, 10 ton, 6x4, GS, cargo, 18ft
FV11213	Truck, 10 ton, 6x4, GS, open line pressure refueller, 2500 gal
FV11214	Truck, 10 ton, 6x4, GS, transporter for radar head, lifting tackle
FV11215	Truck, 10 ton, 6x4, GS, control unit, pilotless aircraft
FV11216	Truck, 10 ton, 6x4, GS, radar head type 13/14, transporter
FV11217	Truck, 10 ton, 6x4, GS, HTP pressure refueller, 1200 gal
FV11218	Truck, 10 ton, 6x4, GS, cargo, 19ft 6in
FV11219	Tractor, 10 ton, 6x4, GS, for semi-trailer, special
FV11220	Tractor, 10 ton, 6x4, GS, for trailer
FV11221	Tractor, 10 ton, 6x4, GS, for trailer

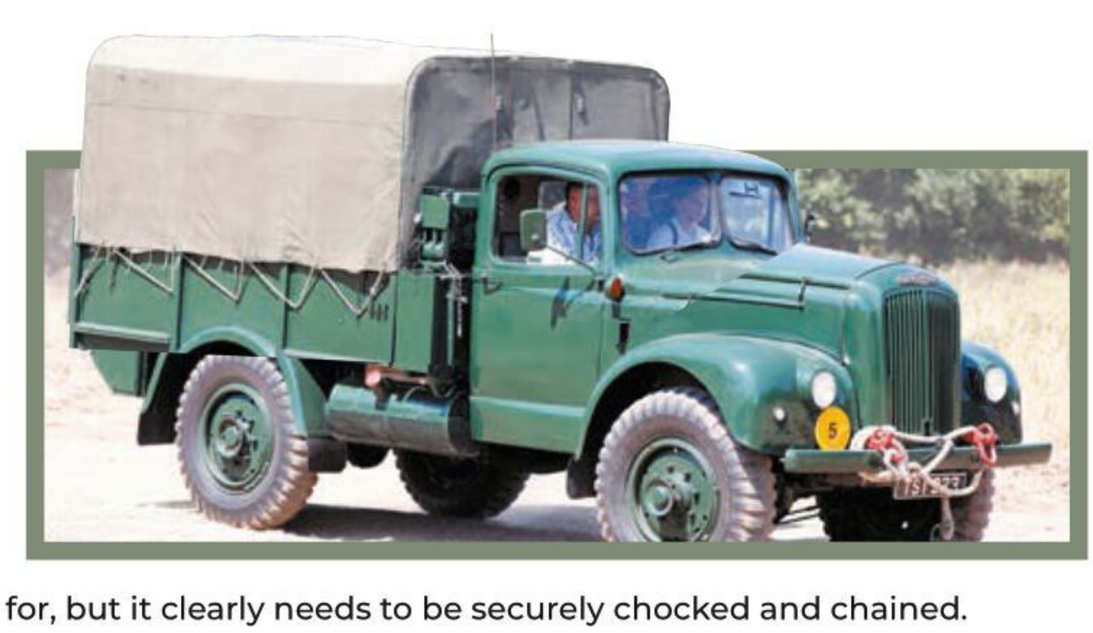
MORRIS-COMMERCIAL

The 1-ton 4x4 MRA1, a militarised version of a civilian truck

The origins of Morris-Commercial can be traced back to 1923 when William Morris purchased the works of the bankrupt axle manufacturer EG Wrigley & Company from the receivers. A year later, in 1924, Morris-Commercial Cars Limited was established on Wrigley's Birmingham premises. The first vehicle produced by the new company was the 1-ton T-type, powered by a Hotchkiss engine. In 1933 the business was moved to the former Wolseley factory in Adderley Park, and, in 1936 the company was sold to Morris Motors Limited.

● FV16101 cargo truck, photographed at the FVRDE exhibition of British military vehicles in 1954.





Left: I don't know what this somewhat battered MRA1 is being used for, but it clearly needs to be securely chocked and chained.

Right: The FV16100 series was based on a down-rated, militarised version of the civilian Morris-Commercial LC4, and was also offered commercially as a 1 $\frac{1}{2}$-ton 4x4. Only very small numbers of the military version have survived... some of which, surprisingly, are in Australia. *(Simon Thomson)*

Morris-Commercial quickly established itself as the largest producer of six-wheeled trucks in Britain, and the D, CD, CDF, CDFW and CDSW types were heavily used by the British Army during the inter-war period, as were the C11/30, CS11/30 and CS11/30F. During WW2, the company supplied thousands of ambulances; 8, 15 and 30cwt cargo vehicles; field artillery tractors; breakdown recovery vehicles; and gun portees. Morris-Commercial also constructed the Thornycroft-designed Terrapin wheeled amphibian, and

the Gosling amphibious four-wheeled trolley, as well as prototypes for the Argosy and Neptune tracked carriers.

The Morris-Commercial brand name continued in use until 1968.

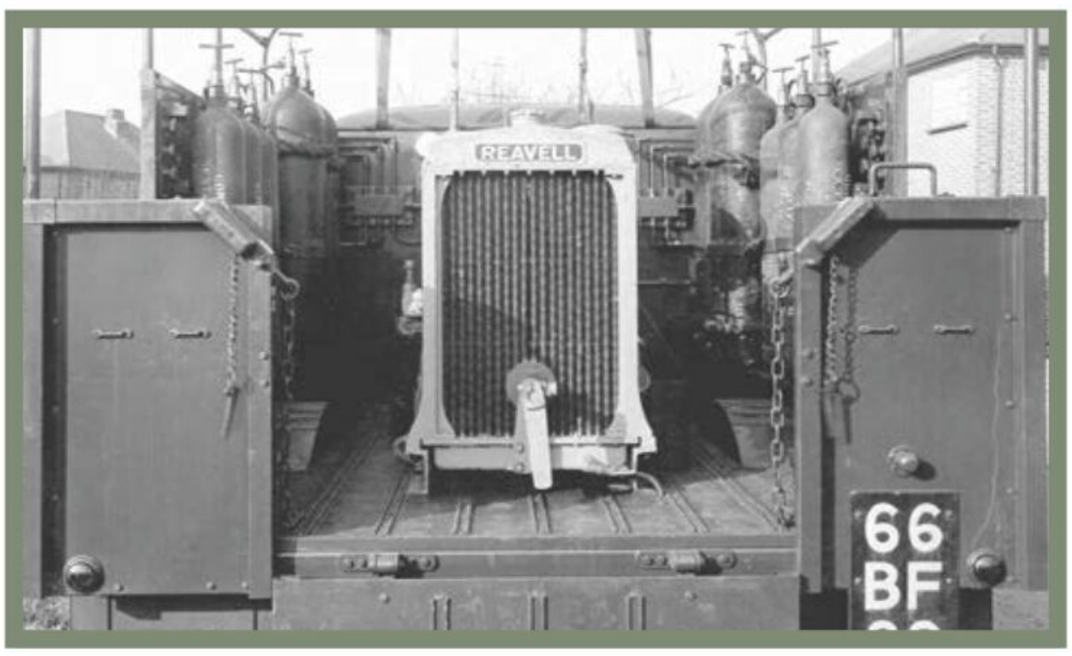
MORRIS-COMMERCIAL MRA1, FV16100 SERIES

The Morris-Commercial MRA1 was based on the company's LC4, a 1 $\frac{1}{2}$-ton 4x2 commercial truck, but was fitted with larger-diameter wheels than the civilian equivalent, as well as having increased ground clearance and four-wheel drive. It was also equipped with standardised electrical and lighting gear, and a military air cleaner. Just four variants were produced under two contracts, and the production line was shut down in 1955 after some 7238 vehicles had been produced. It seems that the MRA1, was not popular with users.

Power was provided by a Morris six-cylinder 72bhp (54kW) petrol engine, driving through a four-speed gearbox and two-speed transfer case, and the truck rode on live axles suspended on semi-elliptical springs with hydraulic shock absorbers. The all-steel cab was a standard civilian design, providing accommodation for a crew of two.

The standard offering was a steel-bodied cargo vehicle. Other variants included a 200-gallon water tanker, dry air-charging body, intended for use with the hydro-pneumatic recuperator cylinders fitted to the 5.5 in howitzer, and a welding vehicle, all three of which were probably conversions from the cargo vehicle.

The truck was also offered commercially as a 1 $\frac{1}{2}$-ton 4x4.



Top: FV16103 was described as a 'dry air charging' truck, and was a Strachans' conversion of the original cargo vehicle, intended for use with the hydro-pneumatic recuperator of the 5.5in howitzer.

Middle: Inside the FV16103 were 10 gas bottles, together with air lines and pressure gauges, and a four-cylinder Reavell petrol engine driving a large three-stage compressor from the same company.

Bottom: FV16104 water tanker that is clearly – witness the lot number 882 – awaiting disposal by auction. Note the missing Morris-Commercial badge, rear-view mirror head, sidelight lenses and headlight rims. *(PM Photography)*

TECHNICAL SPECIFICATION

Production: 1952-55.

Number produced: 7238.

Automotive details
Engine: Morris SEA/5; 4196cc (256in³); six cylinders; bore and stroke, 88x115mm; petrol; overhead valves; power output, 72bhp (54kW).
Transmission: 4F1Rx2; 4x4.
Suspension: live axles, front and rear on semi-elliptical springs, with hydraulic shock absorbers.
Brakes: hydraulic.
Electrical system: 12V.

Dimensions (FV16101 cargo variant)
Length, 211in (5359mm); width, 82in (2083mm); height, top up 96in (2438mm), top down 91in (2311mm).
Wheelbase, 123in (3124mm).
Weight, unladen, 7140 lb (3245kg); laden, 10,000 lb (4545kg).

Performance: maximum road speed, 45mph (73km/h); off-road, 12mph (20km/h).

Variants	
FV16101	Truck, 1 ton, 4x4, GS, cargo
FV16102	Truck, 1 ton, 4x4, GS, water tank, 200 gal
FV16103	Truck, 1 ton, 4x4, GS, dry air charging
FV16104	Truck, 1 ton, 4x4, GS, welding

SCAMMELL LORRIES

Constructor and Explorer... real Scammell superiority

Scammell was originally established as G Scammell & Nephew in London's Bethnal Green area in 1837, producing small handcarts. Horse-drawn vehicles followed and, by 1914, the company had become a leading agent for Commer trucks and Foden steam wagons. In 1919, Scammell launched Britain's first articulated truck and within three years the company had moved to Tolpits Lane, Watford, where it remained until its demise some 70 years later.

● Fitted with a Rolls-Royce C6NFL diesel engine, FV12102 was a Scammell Constructor 20-ton fifth-wheel tractor for use with 30-ton semi-trailers; in this case the FV3541 Royal Engineer's rear-loading trailer with hydraulic ramps.

● Chassis-cab for the FV12105 tractor showing the larger, more modern cab. When complete, the truck would be equipped with a steel ballast body.

The introduction of the Pioneer in 1927 saw the company begin to establish a reputation for heavy vehicles, with hundreds of Gardner-engined examples supplied to the War Office during WW2 for the tank transporter, and artillery and recovery tractor roles. True, the Pioneer might have been plodding and slow, but, nevertheless, it inspired fierce loyalty with users.

Post-war military deliveries were thin on the ground, but included the 6x6 Explorer, effectively a son of the Pioneer recovery vehicle, and the 20-ton 6x6 Constructor. And, although, outside the period covered by this publication, I should also

● Constructor fifth-wheel tractor (FV12102) photographed from the rear. Note the winch fairlead rollers at the back end of the chassis.

mention the Scammell Commander, which replaced the Thornycroft Antar, the Scammell Crusader, and the S26 DROPS (demountable rack offload and pick-up system) vehicle, effectively an 8x6 variant of the S24.

But the end was already in sight when, in 1955, Scammell was absorbed into the growing Leyland empire. In June 1962, Thornycroft, by then a part of Associated Commercial Vehicles Limited (ACV), was similarly taken over and production of Scammell and Thornycroft trucks was eventually brought together at the same site in Watford. However, by this time Leyland was sailing in choppy waters and its financial difficulties ultimately led to the nationalisation of the company in 1974, and to its sale to DAF in 1987.

The Scammell plant was closed in 1988 and Leyland-DAF went bankrupt in 1993.

SCAMMELL CONSTRUCTOR, FV12100 SERIES

Dating from 1952, the Scammell Constructor was a heavy-duty off-road truck that was very much in the traditional Scammell mould, employing the centrally-pivoted front axle first seen on the Pioneer, combined with live axles and semi-elliptical springs at the rear. There were three military variants produced between 1954 and 1958, two carrying a ballast body and designed for use with a drawbar trailer (FV12101 and FV12105), and one with a fifth wheel for use with a 30-ton semi-trailer (FV12102); all were rated at 20 tons.

A standard commercial Meadows-powered Constructor was made available for testing in 1953, but was found to be under-powered and the military variants were equipped with either a Scammell-Meadows 6PC-630 petrol engine or a Rolls-Royce C6NFL diesel. In all cases, the transmission consisted of Scammell's standard six-speed gearbox, combined with a two-speed auxiliary box that also allowed the driver to select all-wheel drive.

FV12101 and FV12102 were equipped with a version of the Bedford O Series three-man cab, the rights to which

● FV12105 equipped as a fifth-wheel tractor, photographed towing a German M2 bridging and ferrying unit on a Cranes twin-axle semi-trailer. Manufactured by EKW and Klöckner-Humboldt-Deutz, the all-alloy M2 bridging unit first appeared in 1968.

SCAMMELL

Top left: FV12105 was manufactured with a steel ballast body and was intended as a prime mover for 30- or 50-ton drawbar trailers. Although this example has been finished in Deep Bronze Green, most were assigned to the RAF. *(Simon Thomson)*

Top Right: Powered by a Scammell-Meadows 6PC-630 petrol engine, FV12101 was described as a 20-ton tractor for use with the FV3621 low-loader drawbar trailer.

Middle Left: They still turn up, as this battered Constructor demonstrates... often in surprisingly original condition! *(Richard Downes)*

Middle Right: Making its first appearance in 1950, and seen here at the 1954 exhibition of British military vehicles at FVRDE, the Scammell Explorer (FV11301) recovery vehicle was a logical replacement for the WW2 Pioneer. Unlike the Pioneer, which was diesel-powered, the Explorer was fitted with a Scammell-Meadows 6PC-630 petrol engine.

Bottom: Chassis of the FV11301 Explorer showing Scammell's patented suspension arrangements designed by Oliver Danson North. At the front there was a pivoting axle, with walking beams at the rear.

● The Explorer remained in service until the early 'seventies, and remains a popular choice with collectors of 'larger than average' military vehicles. *(Simon Thomson)*

TECHNICAL SPECIFICATION: FV12100

Production: 1954-58.
Number produced: 346.

Automotive details

Engine (FV12101): Scammell-Meadows 6PC-630; 10,350cc (632in^3); six cylinders; bore and stroke, 130x130mm; petrol; overhead valves; power output, 162bhp (121kW).

Engine (FV12102 and FV12105): Rolls-Royce C6NFL:12,170cc (743in^3); six cylinders; bore and stroke, 130x152mm; diesel; overhead valves; power output, 175-184bhp (130-137kW).

Transmission: 6F1R; 6x6.

Suspension: live axle at front, centrally pivoted and suspended on single transverse semi-elliptical spring, rear axles mounted on semi-elliptical springs.

Brakes: servo-assisted air pressure.

Electrical system: 24V.

Dimensions: (FV12101 ballast tractor variant)

Length, 298in (7579mm); width, 104in (2642mm); height, 117in (2972mm).

Wheelbase, 189in (4804mm).

Bogie centres, 56in (1424mm).

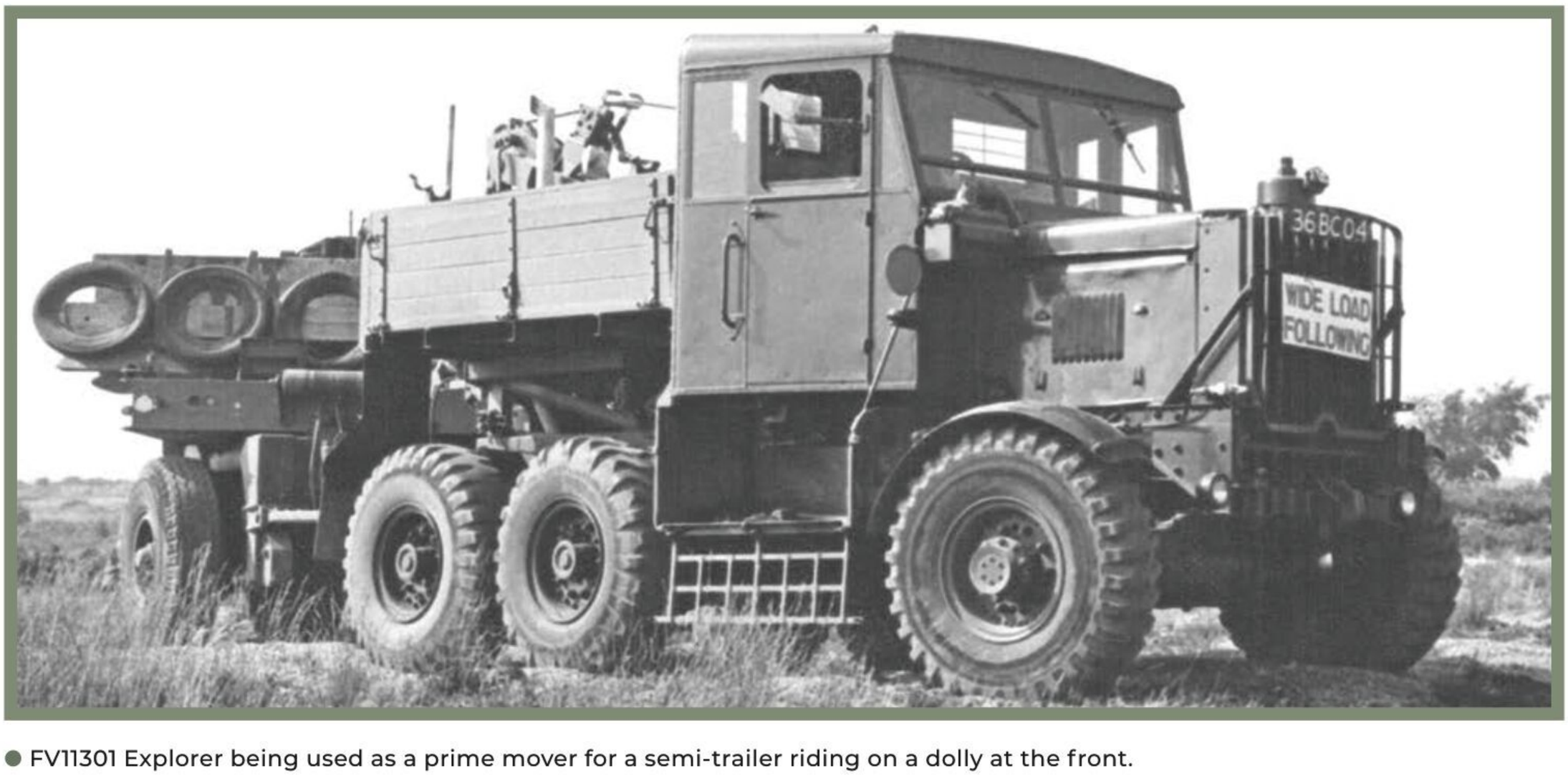
Weight, unladen, 31,739 lb (14,427kg); laden 59,233 lb (26,924kg).

Performance: maximum road speed, 37mph (59km/h); off-road, 10mph (16km/h).

Variants

FV12101	Tractor, 20 ton, 6x6, GS, for full trailer
FV12102	Tractor, 20 ton, 6x6, GS, for 30 ton semi-trailer
FV12105	Tractor, 20 ton, 6x6, GS, for full trailer

● Judging by the tackle in the foreground, the cloud of steam to the left of the cab and the vegetation hanging off the axle, this Explorer has just winched itself across a flooded river.



● FV11301 Explorer being used as a prime mover for a semi-trailer riding on a dolly at the front.

had been purchased by Scammell. The third vehicle in the series, FV12105, was fitted with a steel cab derived from that used on the commercial Junior Constructor, and wore conventional front mudguards, giving a totally different appearance. All military constructors had a roof hatch designed for an anti-aircraft hip ring.

SCAMMELL EXPLORER, FV11300 SERIES

The Scammell Explorer has often been described as an updated version of the wartime Pioneer. Although it does share some features with its predecessor, there are sufficient differences, most notably in the engine and drive-line layout, to consider it a wholly-different machine, albeit sharing the DNA of the old Pioneer. Production started in 1950 with just two variants produced, although there were slight differences in the installed equipment to suit minor roles. For example, a number were equipped with a rear tow hook to suit the mono-wheel fuel trailer

Left: Running on surprisingly bald front tyres, this Explorer shows off the arrangement of equipment lockers at the rear.

Right: One of a batch of 25 FV11301 Explorers supplied in 1951. The recovery equipment consists of a Morris crane, together with a 15-ton main winch, and a 4.5-ton recovery winch.

used with the Centurion tank, others were fitted with a large earth anchor, and nine were supplied to the RAF fitted with a ballast body to serve as a towing tractor.

Under the bonnet, the Gardner diesel engine of the Pioneer was replaced by a Scammell-Meadows petrol engine of 10,350cc (632in³), producing 162bhp (121kW). The gearbox was similar to that used on the Pioneer, but the drive-line now included a driven front axle. The front suspension was the typical Scammell arrangement, with a centrally pivoted axle carried on a single transverse semi-elliptical spring, whilst at the rear there were walking beam gear-cases suspended on longitudinal springs.

The cab was of insulated twin-skin construction, including such luxuries as wind-up windows and full-height doors. There was seating for three, with the driver's seat being adjustable. At the rear the recovery arrangements were similar to the Pioneer, with a two-position sliding jib, and a Turner winch; in the inner position the jib could support a load of 3 tons, whilst in the outer position the load was reduced to 2 tons. Timber equipment lockers were installed to either side of the jib, there was a spare wheel at the rear, and a Scammell 15-ton vertical-spindle winch was installed between the chassis rails.

Despite its rather archaic appearance, the Explorer was a surprisingly capable machine for the period, with total military production reaching 726 over a more than five-year period. A number remained in service into the early 'seventies, eventually being replaced by the AEC Militant Mk 3.

TECHNICAL SPECIFICATION: FV11300

Production: 1950-55.
Number produced: 726.

Automotive details

Engine: Scammell-Meadows 6PC-630; 10,350cc (632in³); six cylinders; bore and stroke, 130x130mm; petrol; overhead valves; power output, 162bhp (121kW).
Transmission: 6F1R; 6x6.
Suspension: live axle at front, centrally pivoted and suspended on single transverse semi-elliptical spring, walking beam gear-cases at rear on semi-elliptical springs.
Brakes: servo-assisted air pressure.
Electrical system: 24V.

Dimensions

Length, 246-247in (6260-6291mm); width, 104in (2635mm); height, with jib retracted, 124in (3162mm).
Wheelbase, 138in (3505mm).
Bogie centres, 51in (1295mm).
Weight, unladen, 26,180 lb (11,900kg); laden, 29,106 lb (13,230kg).

Performance: maximum road speed, 38mph (62km/h); off-road, 12mph (20km/h).

Variants

FV11301	Truck, 10 ton, 6x6, GS, recovery, medium/heavy
FV11301	Truck, 16 ton, 6x6, GS, towing, heavy

THORNYCROFT

Antar, Big Ben and the post-war Nubian

Founded in Chiswick in 1862 by John Isaac Thornycroft, the eponymously named company was one of Britain's first commercial vehicle builders. In 1898, the company moved to a new site at Basingstoke, Hampshire where it remained until the production of Thornycroft vehicles was moved to Scammell.

● The first contract for the Thornycroft Antar (FV12001), dated 1951, covered 15 tractors for the British Army and eight for the RAF. The photograph shows one of the latter, a Mk 1 steel ballast-bodied vehicle, registered 48AN09.

● Dating from 1952, the Antar Mk 2 was produced as both a ballast-bodied tractor (FV12003), as seen here, and as a fifth-wheel tractor (FV12002) for use with semi-trailers.

During the Boer War, a number of Thornycroft steam wagons were shipped to South Africa, and around 5000 examples of the 3-ton J Type petrol-engined truck were supplied to the War Office during WW1. A similar number of 3-ton Nubian and Tartar trucks were purchased during WW2, as well as more specialised vehicles equipped for the searchlight, parachute servicing, and crane roles.

Production of the Nubian continued into the post-war years, with the original 3-ton 4x4 truck joined by a 5-ton 6x6 variant, and with both types of vehicle now fitted with the

● Privately-owned fifth-wheel Antar Mk 2 (FV12002). The photograph is superb, but it singularly fails to convey the size of the machine. *(Simon Thomson)*

● Front three-quarter view of the same machine... on account of its width, the 'Wide Load' warning board is a legal requirement when running the Antar on public roads. *(Simon Thomson)*

standardised Rolls-Royce B series engine. Other post-war military products included the Antar, which remained in service until replaced by the Scammell Commander in 1984, and the Big Ben.

In 1948, the company name was changed to Transport Equipment (Thornycroft) Limited to avoid confusion with the shipbuilding Thornycroft company, and in March 1961, the enterprise was taken over by Associated Commercial Vehicles (ACV). Leyland absorbed ACV in 1962, eventually moving Thornycroft production to Watford in 1972, before discontinuing the use of the name in 1977.

THORNYCROFT ANTAR Mk 1 and Mk 2, FV12000 SERIES

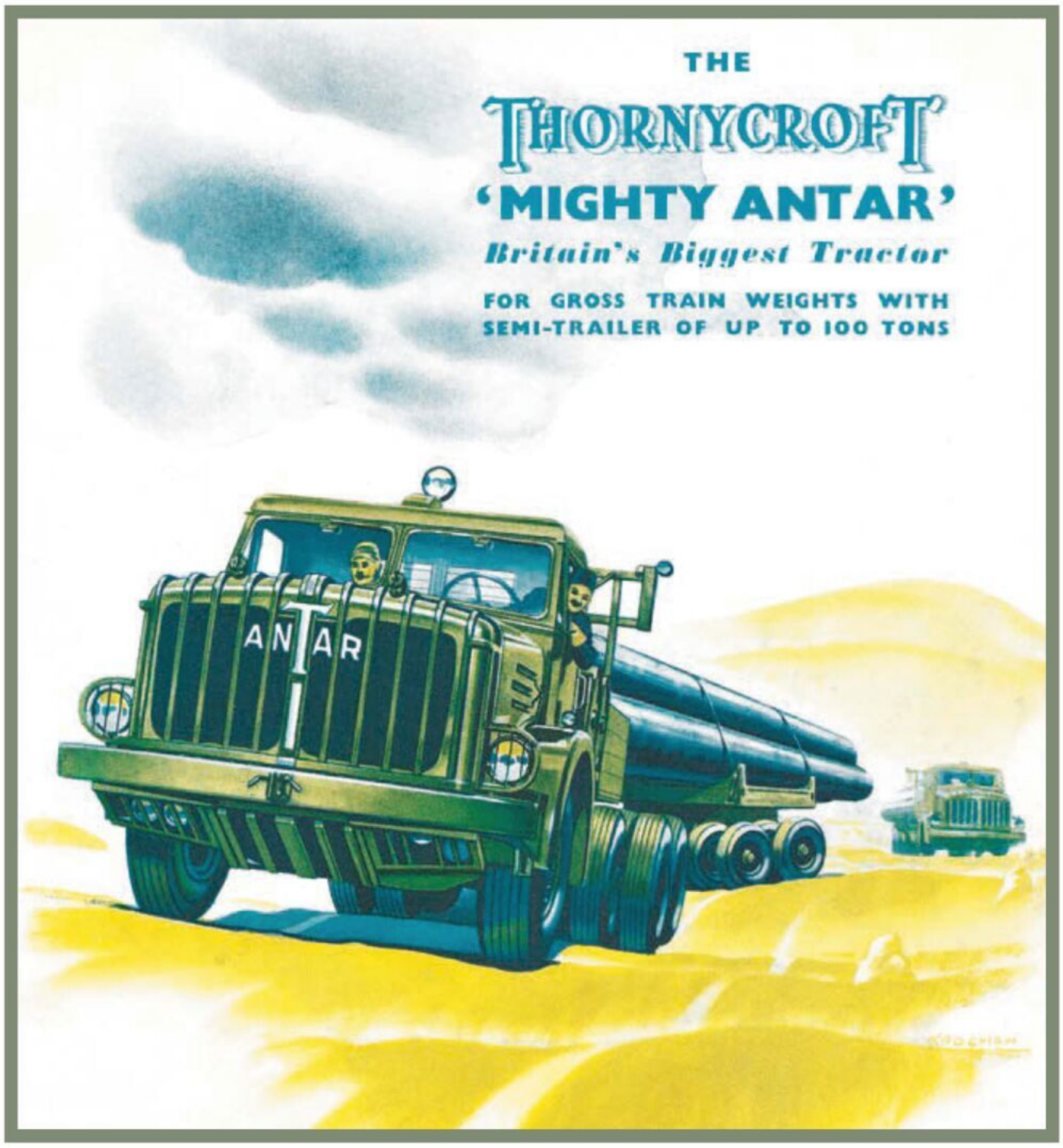
Rather like the situation with the Austin Champ and the Land Rover Series I, the Thornycroft Antar perfectly illustrates the folly of the entire CT/GS business. Introduced as a commercial vehicle in 1950, it was designed for hauling steel

● Seemingly-new FV12002 seen in military service. Note the multiple rear-view mirrors, and the anti-aircraft ring mount on the cab roof.

pipelines across the sandy wastes of the Middle Eastern deserts. Yet, with the minimum of militarisation, it was perfectly suited to the tank-transporting role at a fraction of the cost of either the FV1000 or the FV1200... and without requiring the apparently obligatory five years in development!

The Antar was developed by Thornycroft on behalf of the civil engineering contractors George Wimpey and the Iraq Petroleum Company for use during the construction of the 550-mile (891km) Homs to Kirkuk oil pipeline. A total of 35 tractors were originally constructed at a price of £9000 each. Powered by a Rover Meteorite diesel engine, these early Antars were said to be capable of handling an 82-ton load. Needless to say, this soon attracted the attention of the War Office who wondered whether the Antar might not fill a gap in the Army's vehicle fleet whilst work on the FV1000 and FV1200 tractors was brought to fruition.

Without calling for any trials, a contract was drawn up for a total of 15 Mk 1 Antars at a price of £8177



● Dated March 1950, this Thornycroft sales publication extolls the virtues of the Mighty Antar for oil-field duties. Eschewing the descriptor 'Mighty', British Army tractors were always simply identified as 'Antars'.

● The restyled and much improved Antar Mk 3 was introduced in 1958 and was produced in two configurations. The Mk 3A (FV12006), seen here, had a removable wooden ballast body, whilst the Mk 3 was a fifth-wheel tractor. Both were powered by a Rolls-Royce C8SFL engine.

TECHNICAL SPECIFICATION: FV12000 MKs 1 & 2

Production: 1950-57.
Number produced: 353.

Automotive details

Engine: Rover Meteorite Mk 204; 18,019cc (1099in³); eight cylinders in 'V' formation; bore and stroke, 137x152mm; petrol; overhead valves; power output, 250bhp (186kW).
Transmission: 4F1Rx3; 6x4.
Suspension: live axles, front and rear on semi-elliptical springs.
Brakes: air pressure.
Electrical system: 24V.

Dimensions: (FV12001 ballast body variant)

Length, 330in (8382mm); width, 126in (3200mm); height, 126in (3050mm).
Wheelbase, 186in (4724mm).
Bogie centres, 62in (1575mm).
Weight, unladen, 44,220 lb (20,100kg); laden, 75,900 lb (34,500kg).

Dimensions: (FV12002 fifth-wheel variant)

Length, 321in (8153mm); width, 123in (3124mm); height, 124in (3150mm).
Wheelbase, 186in (4724mm).
Bogie centres, 62in (1575mm).
Weight, unladen, 43,456 lb (19,752kg); laden, 114,240 lb (51,927kg).

Performance: maximum road speed, 28mph (45km/h).

Variants

FV12001	Tractor, 30 ton, 6x4, GS, permanent body
FV12002	Tractor, 50 ton, 6x4, GS, for semi-trailer
FV12003	Tractor, 60 ton, 6x4, GS, ballast body

each, without the military bearing any separate development cost. A second contract followed from the Air Ministry calling for a further eight trucks.

The Army was not impressed with the civilian Antar's diesel engine and requested a carburetted petrol-burning version of the Meteorite, described as the Mk 204, and producing 250bhp (186kW) from a capacity of 18,019cc (1099in³). The transmission consisted of a four-speed main gearbox, combined with a three-speed transfer case, and the suspension arrangements included live axles on semi-elliptical springs.

When compared to the Iraq tractors, the wheelbase was reduced and a steel ballast box was bolted across the chassis in place of the fifth wheel but, in other respects, this was essentially the same chassis.

In April 1952, Thornycroft started work on what was described as the Mk 2 Antar, produced in two versions. FV12002 was fitted with a fifth wheel and was designed for use with semi-trailers, whilst FV12003 carried a removable timber ballast box. Aside from these changes, the Mk 2 Antar shared almost all of its engineering features with its predecessor, and the first example was delivered to the Army in December 1952.

Although it lacked all-wheel drive, it quickly became obvious that, in almost every respect, the Antar could fulfil the tank-transporter roles previously assigned to the FV1000 and FV1200, and could save the taxpayer a bundle of cash at the same time.

Through three 'marks' the Thornycroft Antar served with the British Army for almost 35 years... not a bad record for what was originally seen as yet another stopgap!

THORNYCROFT ANTAR Mk 3, FV12000 SERIES

With a new engine, modified transmission, and a new cab, the Mk 3 Antar not only looked different, but was effectively a totally different beast to that which had gone before. The Mk 3 started to replace the earlier

- **Top Left:** Antar Mk 3 fifth-wheel tractor (FV12004) coupled to the FV3011 50-ton semi-trailer, which is carrying a US Army M88 or M88A1 armoured recovery vehicle.
- **Top Right:** Winch-equipped Big Ben fifth-wheel tractor (FV11401) coupled to a 10-ton low-loading semi-trailer.
- **Middle Left:** Thornycroft Big Ben 10-ton cargo vehicle (FV11402), powered by a Thornycroft GRN6/2 six-cylinder engine of 11,325cc (691in^3), and constructed on a long-wheelbase version of the chassis.
- **Middle Right:** Big Ben cargo vehicle with a fixed-side 18-foot body constructed by Marshall of Cambridge. Unlike most British Army cargo vehicles, there was no provision in the body for troop seats.
- **Bottom Left:** FV11401 was a short-wheelbase Big Ben chassis configured as a prime mover for semi-trailers.
- **Bottom Right:** The British Army purchased a total of 617 Big Ben trucks, with most bodied for the cargo role.

● Coupled to a house-type 10-ton semi-trailer, this Big Ben tractor dwarfs the Hillman Minx Mk 3 saloon car. Big Bens were also supplied to India, as were Antars and Nubians.

vehicles in 1959 and remained in service until it was superseded by the Scammell Commander in 1984.

The old Rover Meteorite engine was replaced by a Rolls-Royce C8SFL, a straight-eight diesel engine that produced 333bhp (248kW) from its 16,200cc (989in³) displacement. The engine was coupled to a four-speed main gearbox, with a combined three-speed transfer case, with the 12 gears selected by means of a single gear lever. The first of the rear axles incorporated a manual differential lock. Suspension consisted of live axles and semi-elliptical springs, inverted at the rear. Improvements were also made to the hydraulic power assistance provided for the steering system.

Also gone, was the old-fashioned coach-built cab, replaced by a new pressed-steel two-man cab produced by Motor Panels and, although considerably wider, similar to the cab used on other Thornycroft vehicles of the period.

Four variants were produced, but only the fifth-wheel FV12004 and the ballast-bodied FV12006 were manufactured in quantity. FV12005 was an experimental all-wheel drive version of FV12004, whilst FV12007

TECHNICAL SPECIFICATION: FV12000 MK 3

Production: 1958-63.

Number produced: 218.

Automotive details

Engine: Rolls-Royce C8SFL; 16,200cc (989in³); eight cylinders; bore and stroke, 130x152mm; diesel; overhead valves; power output, 333bhp (248kW).

Transmission: 4F1Rx3; 6x4; manual differential lock on rear axle.

Suspension: live axles, front and rear on semi-elliptical springs.

Brakes: air pressure.

Electrical system: 24V.

Dimensions: (FV12004, FV12005 fifth-wheel variants)

Length, 343in (8700mm); width, 126in (3200mm); height, 124in (3149mm).

Wheelbase, 123in (3124mm).

Bogie centres, 192in (4880mm)

Weight, unladen, 48,222 lb (21,919kg); laden, 115,471 lb (51,800kg).

Performance: maximum road speed, 32mph (52km/h).

Variants

FV12004	Tractor, 60 ton, 6x4, GS, for semi-trailer
FV12005	Tractor, 60 ton, 6x6, GS, for semi-trailer
FV12006	Tractor, 50 ton, 6x4, GS, ballast body
FV12007	Tractor, 20 ton, 6x4, GS, for semi-trailer

- **Top:** Prototype for the Nubian 5-ton 6x6 field artillery tractor (FV14103) introduced in 1952. Later versions were fitted with a different cab.
- **Bottom:** Side elevation of the Rolls-Royce powered Nubian FV14103 showing the side-mounted fuel tank.

was a lightly-militarised 20-ton version of the standard commercial Antar, equipped with a Rolls-Royce C6 engine, and described as R6. This version was available for export, but at least one example is believed to have been supplied to the RAF.

THORNYCROFT BIG BEN, FV11400 SERIES

Essentially little more than a lightly-militarised and down-rated commercial vehicle, the Thornycroft Big Ben SM/GRN6 was first supplied to the British Army in 1952, with military production continuing until 1955. The Big Ben was rated at 10 tons, and was powered by a six-cylinder petrol engine of 11,325cc (691in³), producing 170bhp (127kW). The transmission consisted of a four-speed main gearbox, coupled to a two-speed auxiliary box. There were live axles, front and rear, carried on semi-elliptical springs.

The vehicle was produced in two variants, with alternative wheelbases. The shorter-dimensioned chassis (162in, 4115mm) was used for the FV11401 tractor for 10-ton semi-trailers, and the longer wheelbase (201in, 5105mm) version was used for the FV11402 fixed-side cargo vehicle.

There was a rugged two-man forward-control cab of all-metal construction, and of typical early-fifties appearance, with a spare wheel stowed behind the cab on a folding frame. The cab could be split at the waistline to reduce the shipping height. The cargo body was manufactured by Marshall of Cambridge.

Examples produced for the commercial market were available in both forward control and bonneted versions, and were generally equipped with a Thornycroft diesel engine.

THORNYCROFT NUBIAN, FV13400 and FV14100 SERIES

The name Nubian was first used to describe a 3-ton 4x4 truck built in large numbers from mid-1940. Following the appearance of a prototype in 1952, production of the Nubian continued after the war with the manufacturer's own AC 4/1 engine replaced by a

● Under-chassis view of the wartime 4x4 Nubian, which was introduced in 1940 and remained in production until the end of the war. The name was resurrected in 1952 for a very similar truck in which Thornycroft's own AC4/1 engine was replaced by a Rolls-Royce B80 eight-cylinder unit.

TECHNICAL SPECIFICATION: FV11400

Production: 1952-55.
Number produced: 617.

Automotive details

Engine: Thornycroft GRN6/2; 11,325cc (691in³); six cylinders; bore and stroke, 121x165mm; petrol; overhead valves; power output, 170bhp (127kW).
Transmission: 4F1Rx2; 6x4.
Suspension: live axles, front and rear on semi-elliptical springs, inverted at rear.
Brakes: air pressure.
Electrical system: 24V.

Dimensions: (FV11402 cargo variant)

Length, 340in (8636mm); width, 98in (2489mm); height, 117in (2972mm).
Wheelbase, 201in (5105mm).
Bogie centres, 54in (1372mm).
Weight, unladen, 25,960 lb (11,800kg); laden, 48,370 lb (21,986kg).

Performance: maximum road speed, 30mph (48km/h).

Variants

FV11401	Tractor, 10 ton, 6x4, GS, for semi-trailer
FV11402	Truck, 10 ton, 6x4, GS, cargo, 18ft

- **Top:** Rear three-quarter view of the FV14103 showing the spare-wheel mount between the cab and the rear body.
- **Middle Left:** Production versions of the FV14103 were fitted with a version of the Motor Panels cab that was adopted by the company in 1952; the artillery body was also heavily modified when compared to the prototype.
- **Middle Right:** Nubian FV14103 chassis-cab showing the under-floor winch and the chassis-mounted fuel tank.
- **Bottom Left:** FV14101 and the winch-equipped FV14102 were 5-ton cargo vehicles using a 14-foot Strachan's body on the Nubian 6x6 chassis.
- **Bottom Right:** Playing to the crowd... a Nubian 6x6 cargo variant shows off its rugged good looks to the assembled faithful of FVRDE.

Rolls-Royce B80 eight-cylinder unit, giving the chassis identification TF/B. The chassis was lengthened, and a second rear axle was added in 1954 to give a 6x6 configuration, and the load-carrying performance was uprated to 5 tons; these vehicles were coded TF/A. A long-wheelbase version appeared in 1954, and the B80 engine was eventually superseded by the higher-capacity B81. Many of these chassis were equipped for the airfield fire-fighting role.

The engine was coupled to a four-speed gearbox and two-speed transfer box, and the suspension consisted of live axles front and rear, suspended on semi-elliptical springs, with hydraulic shock absorbers at the front. The original cabs were somewhat old-fashioned, resembling those used in WW2, but later vehicles were fitted with a more modern cab produced by Motor Panels (Coventry), and there were hybrids consisting of the new cab with a curious simple wire-mesh grille. Fire appliances generally had enclosed bodies constructed by, for example, Sun Engineering or Foamite, with foam-producing and pumping equipment installed to suit the role.

The rights to the Nubian name were sold to Unipower in 1988 and continued to be used for aircraft fire-fighters until Unipower's demise in 1999.

TECHNICAL SPECIFICATION: FV13400, FV14100

Production: 1952-65.
Number produced: not known, but at least 310.

Automotive details

Engine (early production): Rolls-Royce B80; 5675cc (346in³); eight cylinders; bore and stroke, 89x114mm; petrol; overhead inlet valves, side exhaust; power output, 165bhp (123kW).

Engine (late production): Rolls-Royce B81; 6516cc (398in³); eight cylinders; bore and stroke, 95x114mm; petrol; overhead inlet valves, side exhaust; power output, 195bhp (145kW).

Transmission: 4F1Rx2; 4x4 or 6x4.

Suspension: live axles, front and rear on semi-elliptical springs.

Brakes: air- or vacuum-assisted hydraulic.

Electrical system: 24V.

Dimensions: (FV14103 artillery tractor variant)

Length, 249in (6325mm); width, 96in (2438mm); height, 120in (3048mm).

Wheelbase, 144in (3658mm).

Bogie centres, 60in (1524mm).

Weight, unladen, 15,900 lb (7227kg); laden, 26,880 lb (12,218kg).

Performance: maximum road speed, 35mph (57km/h); off-road, 15mph (24km/h).

Variants

The list includes fire-fighting variants produced for the RAF and the Royal Navy.

FV13402	Truck, 3 ton, 4x4, GS, fire-crash, Mk 5, 5A
FV13403	Truck, 3 ton, 4x4, GS, fire tender, dual purpose
FV14101	Truck, 5 ton, 6x6, GS, cargo
FV14102	Truck, 5 ton, 6x6, GS, cargo, with winch
FV14103	Tractor, 5 ton, 6x6, GS, field artillery
FV14105	Tractor, 5 ton, 6x6, GS, light anti-aircraft
FV14150	Truck, 5 ton, 6x6, GS, fire-crash, foam, Mk 7
FV14151	Truck, 5 ton, 6x6, GS, fire-crash, foam
FV14152	Truck, 5 ton, 6x6, GS, fire-crash, foam/carbon dioxide
FV14153	Truck, 5 ton, 6x6, GS, fire-crash, water
FV14154	Truck, 5 ton, 6x6, GS, fire-crash, dual purpose, Mk 2
FV14155	Truck, 5 ton, 6x6, GS, fire-crash, RN
FV14161	Truck, 5 ton, 6x6, GS, fire-crash, RN

VAUXHALL MOTORS

FV1300, a combat-rated 3-ton 6x6 that never passed the prototype stage

Founded by Alexander Wilson in 1857, Vauxhall was originally a manufacturer of marine engines and pumps. In 1863, Wilson was bought out by Andrew Betts Brown and the company started to manufacture travelling cranes under the name Vauxhall Iron Works. Motorcar production started in 1903 and the company was taken over by General Motors in 1925. Truck production began in 1931 under the name Bedford. In 2017, after 92 years in GM's ownership, Vauxhall was sold to the French-based Groupe PSA.

Top: Early photograph of the Vauxhall prototype for the FV1313 artillery tractor,

Bottom Left: Completed FV1313 artillery tractor being put through trials.

Bottom Right: Not the most handsome of trucks! The artillery tractor had a four-door crew cab, whilst the cab of the cargo variant had seats for two.

During WW1, Vauxhall supplied large numbers of the standardised Type D 15HP motorcar, bodied as an enclosed limousine or as an open tourer. Although the manufacture of civilian vehicles was reduced to a trickle between 1939 and 1945, Vauxhall-badged vehicles supplied during WW2 included examples of the 10HP Series H, the 12HP Series I, the 14HP Series JI, and the 25HP Series GY saloon cars, all acting as four-seat staff cars. Bedford, of course, supplied thousands of vehicles to the services during this period, but that is another story.

In the post-war years, the Vauxhall name appeared on Velox, Victor and Ventora staff cars, but it remains a mystery as to why the FV1300 series was attributed to Vauxhall, normally considered as a manufacturer of motorcars, rather than Bedford.

VAUXHALL FV1300 SERIES

Plans for a combat-rated 3-ton 6x6 truck were first mooted in 1948 and an approach was made to Vauxhall Motors with a detailed specification. The series was designated FV1300, and two wheelbase lengths were specified, covering a total of 17 variants, including two types of cargo vehicle on a long-wheelbase chassis, and a light recovery vehicle, field artillery tractor, tipper, and heavy ambulance on the shorter wheelbase. Despite a dozen prototypes being ordered, in the end, only the FV1301 cargo vehicle, and the crew-cabbed FV1313 artillery tractor were constructed.

As with all but the 30- and 60-ton CT-rated vehicles, power was provided by a Rolls-Royce B series petrol engine, in this case the eight-cylinder B80, coupled to a six-speed gearbox offering both high- and low-range gears. There was independent suspension using torsion bars at the front, and a complicated combination of torsion bars and semi-elliptical

springs for the chain-driven walking beams at the rear.

Both two- and four-door cabs were produced, but, curiously, the cab and front-end sheet metal shared nothing with contemporary Bedford trucks.

There was also much havering over the price, which at £4500 to £6000 each, according to quantity, was considered to be way too expensive by the War Office. Vauxhall not only refused to budge on the price, but also started to come over coy regarding production availability and eventually excused themselves from the process altogether. Production for the FV1300 was then contracted to Albion Motors, with the first prototypes delivered in 1952. However, it would be fair to say that development did not go well... the design was considered to be over-complicated and there were too many failures.

In June 1953, it was announced that the contract had been cancelled 'because of a change in the defence programme'.

Top: Artillery tractor soundly defeated by the mud.

Middle: The bonnet markings suggest that this FV1313 artillery tractor is prototype number four, of eight or nine vehicles produced.

Bottom: Prototype four again, towing a 25-pounder and struggling to make progress in arduous going.

TECHNICAL SPECIFICATION

Production: 1949-52.

Number produced: eight or nine.

Automotive details

Engine: Rolls-Royce B80; 5675cc (346in³); eight cylinders; bore and stroke, 89x114mm; petrol; overhead inlet valves, side exhaust; power output, 160bhp (104kW).

Transmission: 6F2R; 6x6.

Suspension: independent, front and rear using torsion bars, with four shock absorbers on the front axle; walking beams at rear with torsion bars and inverted semi-elliptical springs.

Brakes: hydraulic with compressed air assistance.

Electrical system: 24V.

Dimensions

Length, 240in (6100mm), or 270mm (6858mm); width, 94in (2388mm); height, 102in (2590mm).

Wheelbase, 144in (3660mm), or 168in (4270mm).

Bogie centres, 52in (1322mm).

Weight, not available.

Performance: maximum road speed, 40-45mph (65-73km/h); off-road, 15mph (24km/h).

Variants

A total of 17 variants were planned, just two were prototyped, with eight or nine vehicles produced.

FV1301	Truck, 3 ton, 6x6, CT, cargo
FV1313	Truck, 3 ton, 6x6, CT, medium artillery tractor

THE FUTURE

What does the future hold for the procurement of British logistic vehicles?

One of the difficulties of what, these days, is called 'war-fighting' is that, inevitably any new conflict must be undertaken with the tools and equipment of the previous. Hence the inter-war fascination with trench warfare, the post-WW2 obsession with factory waterproofing of vehicles in order to facilitate amphibious landings, and today's love affair with stand-off and bar armour!

● This was an Austin Champ, a technically advanced and innovative vehicle. In 1956 it cost the British taxpayer something like £1200; in today's money that is £32,000... and just look at it now!

Let's face it, there is very little evidence of standardisation in the British Army's current logistics fleet. 'Urgent Operational Requirements' (UORs), cost over-runs and delays have very much dictated the shape of the current fleet... but, if the Ministry of Defence could only predict how and where the next major conflict might occur – and, for my money it won't be the Middle East – perhaps the procurement and user arms could finally get their acts together.

I won't be holding my breath.

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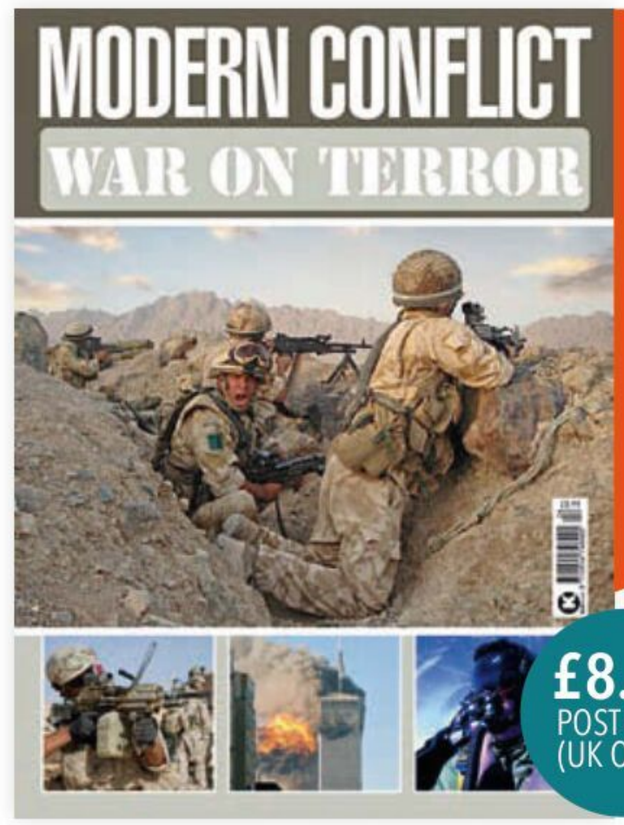

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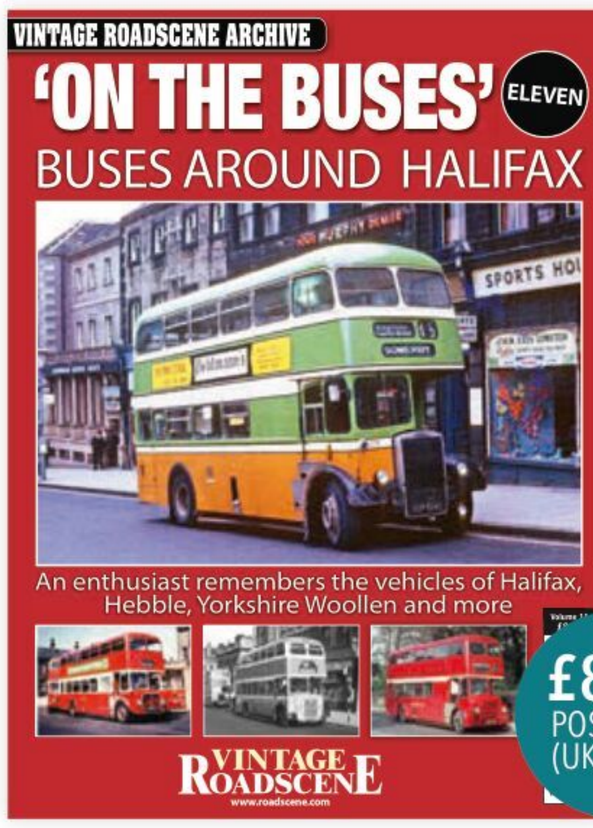
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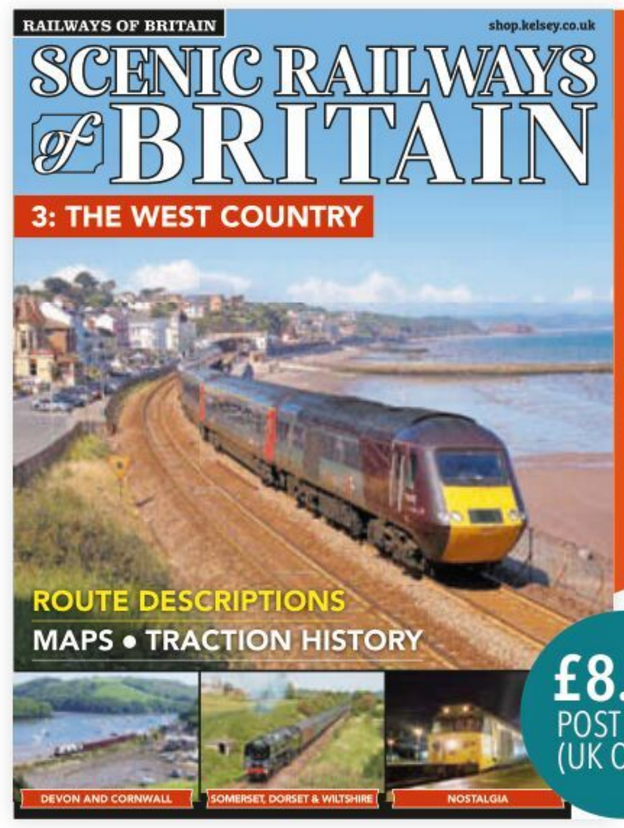

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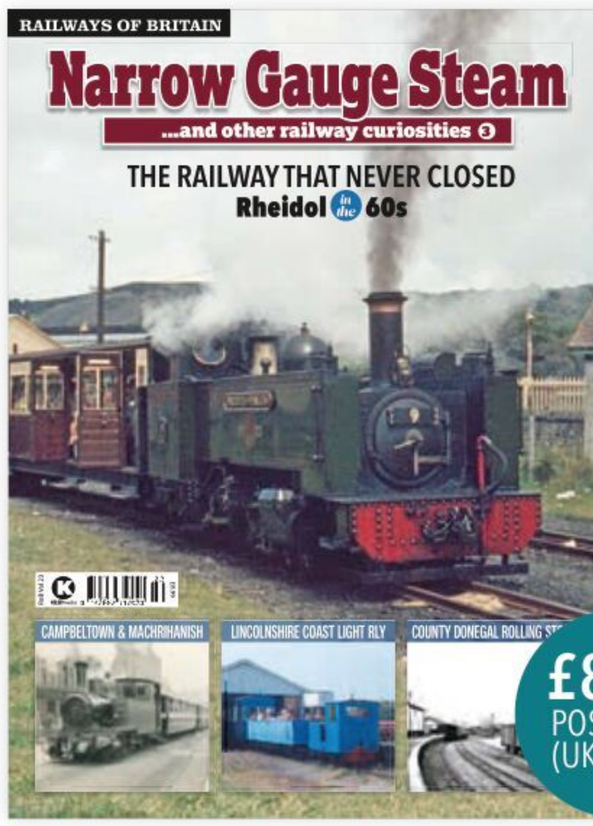

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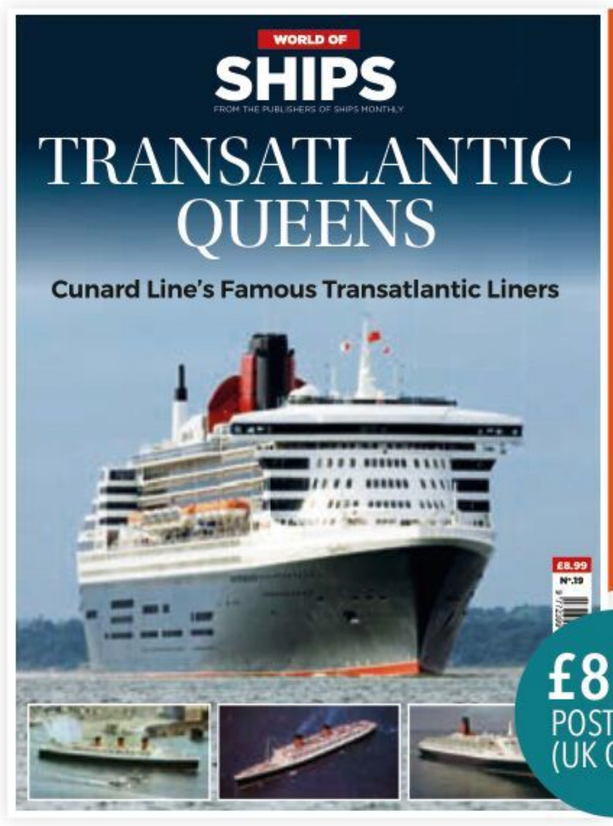

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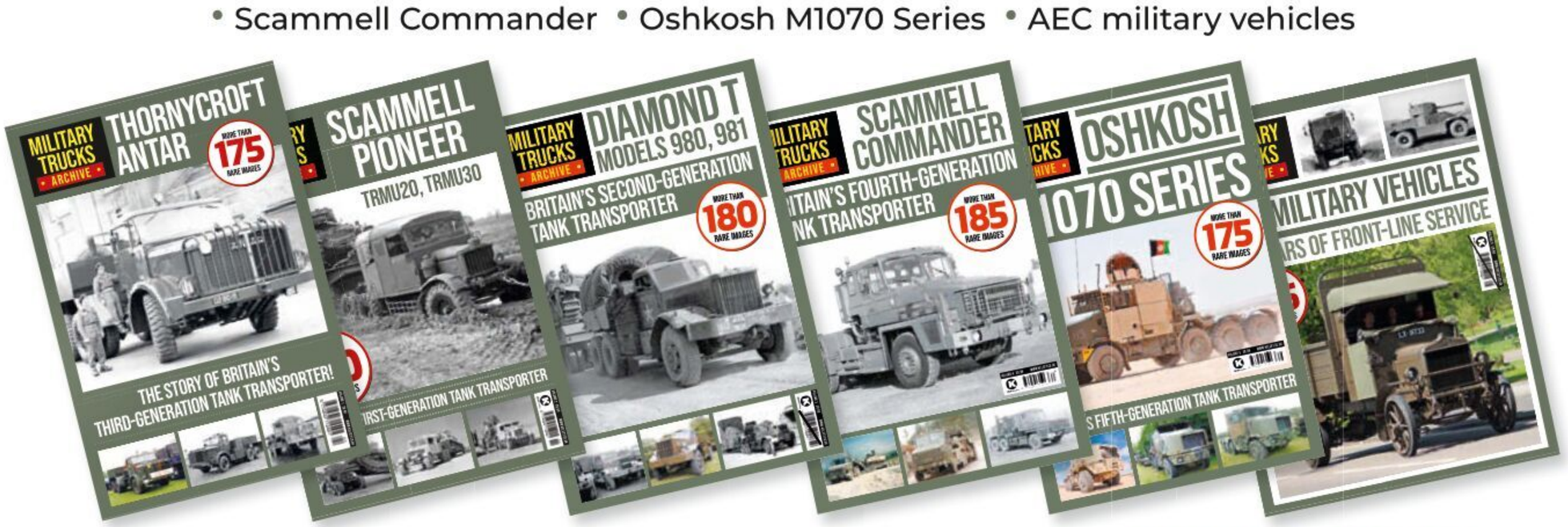

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